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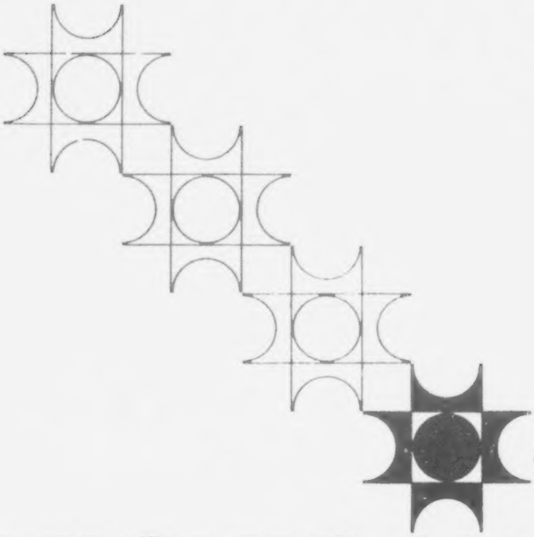

MICHIGAN DEPARTMENT
OF PUBLIC HEALTH

MICHIGAN HEALTH STATISTICS

1980

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INTRODUCTION

The 1980 edition of Michigan Health Statistics is a statistical summary of vital events for calendar year 1980. Data relative to population, births, deaths, fetal deaths, marriages, divorces and communicable diseases are included. Although most of the data in this report pertain to events occurring in 1980, some data for prior years have been included to illustrate trends. Most of the tabulations refer to Michigan residents. Some events, however, such as marriages and divorces are tabulated with respect to where the event occurred rather than the residence of the party or parties involved.

As a certain number of Michigan residents either deliver babies or die out of state each year, it is necessary to include data obtained from the certificates of other states in any tabulations pertaining to Michigan residents. This report included all such out-of-state certificates received prior to April 30, 1981, and all in-state certificates and records received prior to March 15, 1981. Although a few records for the calendar year 1980 were received after these filing dates, their exclusion from this report is statistically insignificant.

The report is composed of the following sections and appendices:

1. Natality Section, 2. Mortality Section, 3. Marriage and Divorce Section, 4. Reference Appendix.

Comments or suggestions concerning the content and format of this report are always welcome. Any additional needs for data or analyses may be directed to the Office of Vital and Health Statistics. A summary of prepared vital statistics tabulations, Index to Michigan Vital Statistics 1960 to Present, is also available. This index lists the types of tabulations and data available. The Office will make every attempt to comply with requests for data within the limitation of staff and resources.

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TECHNICAL NOTES, DEFINITIONS, RATES AND RATIOS

DEFINITIONS

BIRTH WEIGHT-Weight of fetus or infant at time of delivery (normally recorded in pounds and ounces).

FETAL DEATH-Death prior to the complete expulsion or extraction from its mother of a product of conception, having passed through at least the 20th week of gestation or weighing at least 400 grams; the fetus shows no signs of life such as beating of the heart, pulsation of the umbilical cord, or definite movement of voluntary muscles. (Note: This includes both spontaneous and induced terminations.)

FIRST BIRTH-A live birth where the maternal medical history indicates there were no prior live births to the mother.

GESTATIONAL PERIOD-Number of weeks elapsed between the first day of the last menstral period and the date of delivery.

HEBDOMADAL DEATH-Death occurring to an individual less than 7 days of age.

INFANT DEATH-Death occurring to an individual less than 1 year of age.

INTERPREGNANCY TIME PERIOD-Birth date minus date of last termination, whether a live birth or fetal death, in months. Time periods of zero length are dropped to exclude 2nd or higher births of multiple deliveries.

LEADING CAUSES OF DEATH-Deaths are grouped into 72 categories dependent upon the underlying cause of death. Ranks are assigned by organizing these categories according to the number of deaths in each category from most frequent to least.

LIFE EXPECTANCY-A hypothetical calculation of the average age at death for a cohort of persons subject to the age-specific mortality rates observed over a given time period.

LIFE TABLE VALUES:
nqx=The proportion of persons in the cohort alive at the beginning of an age interval (x) who will die before reaching the end of that age interval (x+n).
lx=The number of persons living at the beginning of an age interval (x) out of an original cohort of 100,000.
ndx=The number of persons who would die during an age interval (x to x+n) out of an original cohort of 100,000.
nLx=The number of person-years that would be lived within an

indicated age interval (x to x+n) out of an original cohort of 100,000 alive for all or part of the interval.

Tx=The number of person-years that would be lived after the beginning of an age interval (x) by an original cohort of 100,000 until all are assumed to have died.

ex=The average remaining lifetime (in years) for an individual person who survives to the beginning of an indicated age interval (x).

LIFE BIRTH-A live birth is the complete expulsion or extraction from its mother of a product of conception, irrespective of the duration of pregnancy, which, after such separation, breathes or shows any other evidence of life, such as beating of the heart, pulsation of the umbilical cord, or definite movement of voluntary muscles.

LIVE-BIRTH ORDER-Order number is equal to number of previous live births plus current birth.

LOW-WEIGHT BIRTH-Birth wherein the birth weight is equivalent to 2,500 grams or less (approximately 5 lbs., 8 oz.).

MATERNAL DEATHS-Those deaths wherein the physician has designated a maternal condition as the underlying cause of death.

MEAN-The average of a set of values, equal to the sum of the values divided by the number of values.

MEDIAN-The central value of a distribution of values wherein the same percentage of observations are above this point as are below.

MINOR CIVIL DIVISION-City, village, or township.

NEONATAL DEATH-Death occurring to individual less than 28 days of age.

OCCURRENCE-Place where the event actually occurred.

PERINATAL DEATH-Fetal death or death under 1 week of age.

PROBABILITY OF EVENTUALLY DYING FROM A GIVEN CAUSE OF DEATH-The chance of death due to a given cause rather than some competitive cause over the course of a lifetime based on current mortality data and life expectancy techniques.

RACE-Race for mother, father, or decedent is as stated on certificate. Race of child is determined from the race of the parents.

REMAINING YEARS OF LIFE-A hypothetical calculation of the average number of years a cohort of persons will live given that they have reached a specific age and assuming they are subject to the age-specific mortality rates observed over a given time period.

RESIDENCE-Usual place of residence for person to whom event occurred. For births and fetal deaths residence is defined as the mother's usual place of residence.

TOTAL BIRTHS-Live births and fetal deaths.

UNDERLYING CAUSE OF DEATH-That condition giving rise to the chain of events leading to death.

RATES AND RATIOS

AGE-ADJUSTED DEATH RATE-A summary rate of death that is developed using a standard population distribution to improve the comparability of rates for areas or population subgroups with differing age distributions. When calculated by the direct method, as in this report, age-specific death rates for a geographic area or population subgroup are multiplied by the standard population by specific age and the products summed and divided by the total standard population. Age-adjusted death rates represent the mortality experience that would have occurred in a standard population had the age-specific rates of the area or population subgroup been experienced by the standard population. These rates are presented as per 100,000 population.

AGE-SPECIFIC BIRTH RATE-No. of resident live births to women of a specific age divided by total female population of specific age x 1,000.

AGE-SPECIFIC DEATH RATE-No. of deaths in specific age group divided by total resident population in specific age group x 100,000.

AGE-SPECIFIC DEATH RATE BY CAUSE OF DEATH-No. of deaths in specific age group and from a specific cause divided by total resident population in specific age group x 100,000.

AGE-SPECIFIC MARRIAGE RATE-No. of marriages in specific age group by sex divided by total resident population in specific age and sex group x 1,000.

CAUSE-SPECIFIC RATE-No. of deaths due to a specific cause divided by total resident population x 100,000.

COMMUNICABLE DISEASE CASE RATE-No. of reported cases (specific communicable diseases) divided by total resident population x 100,000.

CRUDE BIRTH RATE-No. of resident live births divided by total resident population x 1,000.

CRUDE DEATH RATE-No. of resident deaths divided by total resident population x 1,000.

DIVORCE RATE-No. of persons (divorces and annulments) divided by total resident population x 1,000.

FERTILITY RATE-NO. of resident live births divided by total female population (ages 15-44) x 1,000.

FETAL DEATH RATE-No. of resident fetal deaths divided by total resident live births and resident fetal deaths x 1,000.

FETAL DEATH RATIO-No. of resident fetal deaths divided by total resident live births x 1,000.

FIRST MARRIAGE RATE-No. of marriages to persons not previously married by sex divided by total resident population by sex x 1,000.

INFANT MORTALITY RATE-No. of infant deaths divided by total resident live births x 1,000.

LOW-WEIGHT BIRTH RATIO-No. of low-weight births divided by total resident live births x 1,000.

MARRIAGE RATE-No. of persons married divided by total resident population x 1,000.

MATERNAL DEATH RATE-No. of maternal deaths divided by total resident live births x 10,000.

NEONATAL DEATH RATE-No. of neonatal deaths divided by total resident live births x 1,000.

NO PRENATAL CARE RATIO-No. of live births to mothers with no prenatal care divided by total resident live births x 1,000.

PERINATAL DEATH RATE-No. of perinatal deaths divided by total resident live births and resident fetal deaths x 1,000.

RATE OF NATURAL INCREASE-(Total resident live births minus total resident deaths) divided by total resident population x 1,000.

TOTAL FERTILITY RATE-Sum of (age-specific birth rates) x (number of years in age group) for each age group from ages 10-14 through 45-49 years.

RELIABILITY OF RATES

Care should be taken in drawing specific inferences from comparisons of rates for different areas or different periods of time. Rates based on a small number of events or for a small area tend to exhibit considerable variation from time period to time period or place to place. Excessive variation in rates not only negates their utility as estimators of the probability of an event occurring but also their usefulness for comparative purposes. Also, one should recognize the limitations of using unadjusted rates in attempting to attribute rate differences to particular factors. For example, one should not attempt to state that there was a significant difference in rates for two geographic areas for atherosclerosis without first adjusting the rates to negate the effects of differing age distributions in the two areas. Many times there are simply not sufficient data available to adequately adjust rates for all possible compounding factors. For this reason the reader should exercise diligence and caution while attempting to draw substantive conclusions when comparing vital statistics rates.

QUALIFICATIONS AND LIMITATIONS OF DATA AND CALCULATIONS

UNDERREGISTRATION OF EVENTS

The underregistration of vital events in Michigan is considered to be a minimal problem particularly for births and deaths. Tests of registration completeness conducted in conjunction with the 1950 Census indicate that the registration of births was 98.5 percent complete, and that death registration was even more complete. The number of certificates received too late for inclusion in annual statistical files is insignificant when examining statewide patterns.

GEOGRAPHIC ALLOCATION

The allocation of events on a residence or occurrence basis is for the most part accurate and complete. However, allocations to minor civil divisions are subject to question in some instances. In those cases where the respondent completes the residence item with a mailing address, geographic allocation is sometimes undeterminable and the record receives an unknown minor civil division code.

FETAL DEATHS

Fetal deaths in Michigan include only those conceptions that have passed through 20 weeks gestation or that weigh 400 grams or more. Prior to the introduction of a new reporting form for fetal deaths on September 30, 1978, Michigan law required only the reporting of deaths of fetuses which had passed through 20 weeks gestation. Inadequacies in determining the gestational age of the fetus may have resulted in some underreporting of fetal deaths. The change in definition has had little impact on the number of fetal deaths reported.

COMPARABILITY IN CAUSE OF DEATH STATISTICS

The reader should bear in mind two major limitations in interpreting changes in cause-of-death statistics. Changes in nomenclature and the classification scheme (International Classification of Diseases) and changes in diagnostic practices may seriously affect the comparability of such statistics over time. The classification scheme (ICD) is modified approximately once every ten years to reflect changing medical opinion and practice. The reader is most accurate when comparing cause-of-death certificates which are coded via one revision of the International Classification of Diseases and utilizing the coding practices and procedures in effect at that time.

In order to compare cause-of-death statistics from one revision to the next it is necessary to apply a 'comparability ratio'. Such ratios are developed by comparing the number of deaths assigned to a certain condition or group of conditions under one revision to the number assigned under another revision of the ICD.

In 1979 the 9th Revision of the International Classification of Diseases was introduced for coding causes of death.

LIFE EXPECTANCY

The procedure used to obtain the Michigan life table values is called the iterative method. This is a method which has been developed by Professor Felix Moore of the Department of Biostatistics, School of Public Health, University of Michigan.

For the age group 0-1 the method utilizes the algorithm developed by Greville with no iteration. For all subsequent age groups the method of Greville (Keyfitz) is used with three iterations to improve the estimate of ndx and nqx. An iteration procedure is also used for nLx for age groups 75-80 and 80-85 where the accuracy of mortality information is a factor and for obtaining the separation factor for the age group 1-4.

The life expectancy data by region shown in Figure 4.7 was prepared using a revised series of population estimates for 1979. (The revised population data were derived using 1970 and 1980 census counts). Data were grouped by ten year age groups (except for the age groups under 1 year and 1-4 years) to compute the life expectancy at birth for the regions.

AGE-ADJUSTMENT PROCEDURE AND POPULATION ESTIMATION

The age-adjusted rates for Michigan presented in this report for years 1970-1980 were calculated using Michigan resident mortality data and a revised series of population estimates. Death records with the race not stated were first randomly allocated to the white and other than white groups based on the proportion of Michigan resident deaths in each of the racial categories for that year. Records with sex not stated were randomly assigned to male and female (50 percent each). Records with age not stated were allocated to the age group 85 and over.

Population data for 1970 and 1980 were obtained from the April 1, 1970 and April 1, 1980 census counts. Data for 1980 include estimates derived from a provisional census release of the distribution by age, race, and sex, as well as some final counts by age and sex (see Table 4.17). The population totals used for 1971-1979 are revised intercensal estimates released by the Census Bureau. The breakdowns of these totals by age, race, and sex were prepared by the Office of Vital and Health Statistics. For 1970 and 1980 the proportion of the total population in each age, race, and sex group was computed. Estimates of the proportion of the total population in each age, race, and sex group for the years 1971-1979 were then derived by interpolating between the proportions for 1970 and 1980. These subgroup proportions were then applied to the revised state totals to obtain population estimates by age, race, and sex for years 1971-1979.

In the age-adjustment procedure ten age groups were employed including under 1 year, 1-14 years, ten year age groups from 15-24 years to age 75-84, and 85 years and over. Age-specific rates for the total population and for each subgroup were applied to the same standard population distributed by age. The resulting "expected deaths" were then summed over the ten age groups and divided by the total of the standard population to obtain the age-adjusted rate. The standard population selected was the 1940 United States enumerated population. Comparisons can be made between subgroup rates, between rates in different years, and between rates for Michigan and similarly computed rates for the United States. Rates for the United States were taken from publications by the National Center for Health Statistics, U.S. Dept. of Health and Human Services.

NATALITY

SECTION I

Natality: An Overview, 1980

TOTAL RESIDENT BIRTHS	146,338
TOTAL RESIDENT LIVE BIRTHS	145,162
RESIDENT LIVE BIRTHS PER DAY	396.6
TOTAL RESIDENT FETAL DEATHS	1,176
RESIDENT FETAL DEATHS PER DAY	3.2
CRUDE BIRTH RATE	15.7
FERTILITY RATE	66.3
FETAL DEATH RATIO	8.1
FIRST ORDER BIRTHS (PERCENT OF TOTAL LIVE BIRTHS)	42.4
MEDIAN BIRTH WEIGHT IN GRAMS (LIVE BIRTHS)	3,380
MEDIAN BIRTH WEIGHT IN GRAMS (FETAL DEATHS)	1,360
LOW-WEIGHT LIVE BIRTHS	9,997
LOW-WEIGHT BIRTH RATIO	68.9
MEDIAN AGE OF MOTHER (LIVE BIRTHS)	25
MEDIAN AGE OF MOTHER (FETAL DEATHS)	25
LIVE BIRTHS WITH CONGENITAL ANOMALIES	1,155
CONGENITAL ANOMALIES PER 10,000 LIVE BIRTHS	79.6
LIVE BIRTHS WITH NO PRENATAL CARE	938
NO PRENATAL CARE RATIO	6.5
HOME BIRTHS	645
LIVE BORN SETS OF TWINS	1,435
LIVE BORN SETS OF TRIPLETS	20
LIVE BORN MULTIPLE BIRTHS OF FOUR OR MORE	0
MALE LIVE BIRTHS PER 100 FEMALE LIVE BIRTHS	104.5

Between 1900 and 1980 the number of total births has varied considerably. The general trend has been increasing numbers of total births from 1900 through 1957 and declining numbers since that time. According to the annual enumeration of births by local officials in 1900 there were 45,024 total births in Michigan. This figure dropped slightly to 44,722 in 1901 (the lowest total in the century). The number of total births reported increased significantly with the initiation in 1906 of mandatory filing of individual certificates for each Michigan birth. Total births increased during the next two decades, dropped temporarily in 1919, and then leveled off at just over 100,000 between 1924 and 1930. During the first years of the Great Depression, total births declined from 102,596 in 1930 to 83,258 in 1933. Then from 1933 to 1957, excluding the war years of 1944 and 1945, total births increased to a century high peak of 211,642 in 1957. Total births in the next two decades dropped to a post-World War II low of 132,642 (revised) in 1976. In each of the past four years, the number of total births increased. The number in 1980 was 146,338 (Table 1.1).

LIVE BIRTHS

Between 1900 and 1980, the number of live births has varied considerably. The smallest number of live births officially recorded in this century was 43,221 in 1901. The actual number of live births was undoubtedly higher, as a significant percentage of births were not recorded prior to 1906. Figure 1.1 portrays the number of live births for Michigan from 1900 through 1980. Live births, which constitute a large percentage of total births, naturally followed the same pattern of increases and decreases, rising appreciably from 43,699 in 1900 to 208,488 in 1957, the peak year for this century. Between 1957 and 1976, live births decreased by 37 percent to 131,378, the lowest total in 31 years. In 1977, however, live births increased by 5.4 percent, the largest such increase since 1951. The figure in 1978 was up slightly (0.3 percent), and in 1979 the live birth figure of 144,452 was 4.1 percent higher than that of 1978. In 1980 the number of live births was 145,162, an increase of 0.5 percent from the figure for 1979. This is the most live births since 1972.

The national pattern is similar to that observed in Michigan. Live births increased from an estimated 2,718,000 in 1909 to an estimated 4,300,000 in 1957. Since 1957, there has been a general decline in live births. The low point occurred in 1973 when live births in the United States totaled 3,136,965. The 1977 national live birth total was 5.0 percent higher than the 1976 figure, and the number for 1978 was up 0.2 percent. The figure for 1979 was 4.8 percent higher than that of 1978. For 1980 the provisional

Table 1.1
Total Births, Michigan Residents, Selected Years, 1900-1980

YEAR	TOTAL BIRTHS
1900	45,024
1901	44,722
1910	66,668
1920	96,015
1930	102,596
1933	83,258
1940	101,708
1950	163,150
1957	211,642
1960	198,064
1970	173,727
1971	164,167
1972	148,624
1973	143,232
1974	138,852[1]
1975	135,287[1]
1976	132,642[1]
1977	139,700[1]
1978	140,020[1]
1979	145,668
1980	146,338

[1] Revised.

FIGURE 1.1 LIVE BIRTHS, MICHIGAN RESIDENTS, 1900-1980

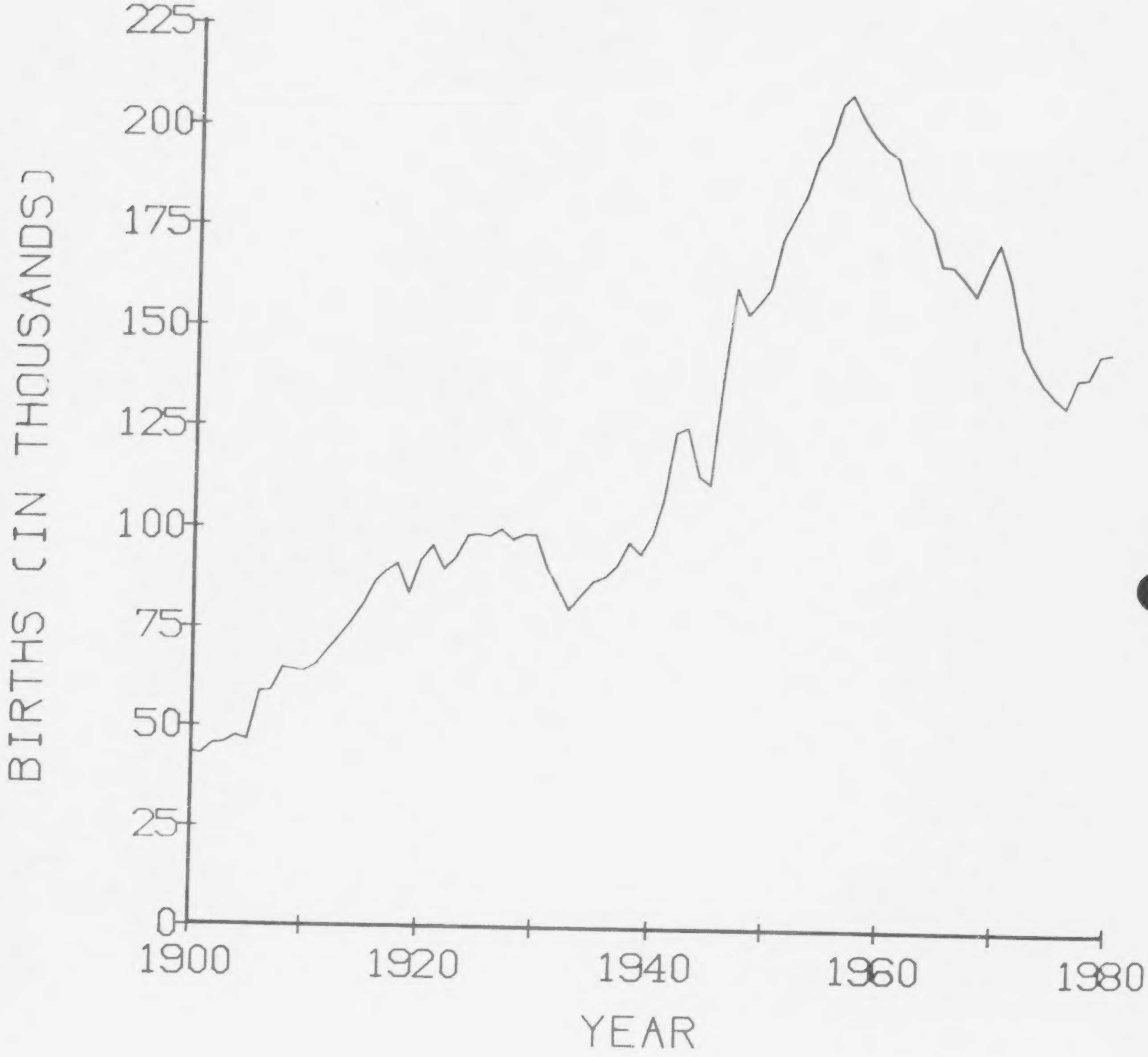


figure was 3,598,000, an increase of 3.0 percent from the final number recorded for 1979.

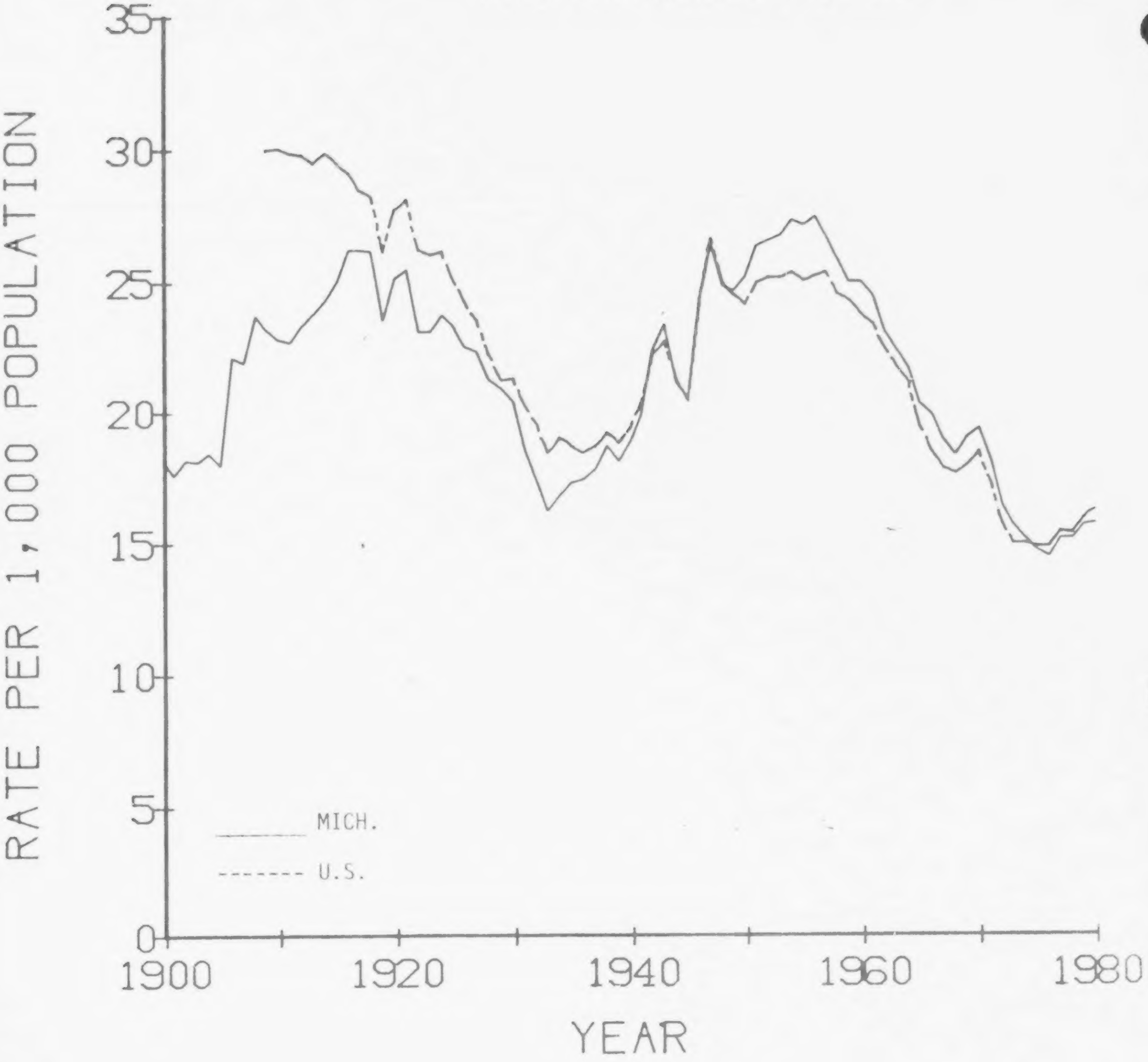
Another view of the historic pattern in live births may be obtained through examination of changes in the crude birth rate. By considering population size the historic pattern of live births is stabilized (Figure 1.2). The crude birth rate in Michigan ranges from a low of 14.4 in 1976 to a high of 27.4 in 1956. The crude birth rate increased from 22.1 in 1906, the first year for filing birth certificates, to 26.2 in 1916. During the period 1917 to 1933 Michigan's crude birth rate declined steadily, reaching 16.2. The birth rate rose over the next 23 years to a peak in 1956 (27.4). Since 1956, Michigan's crude birth rate has declined. In 1973, a century low rate was observed, replacing the 1933 rate as the lowest recorded for the state. The next three years in succession replaced the prior year figure as the lowest birth rate on record. In 1977, the crude birth rate increased to 15.1. The 4.9 percent increase in the crude birth rate in 1977 was the largest percentage increase in this rate since 1947. The crude birth rate remained unchanged in 1978. In 1979 the crude birth rate increased by 3.3 percent to 15.6. In 1980 the crude birth rate increased slightly to 15.7, the highest rate since 1972.

National statistics follow the same general pattern of rising and falling as observed in Michigan. The highest rate observed nationally over the period 1909 through 1980 was 30.1 in 1910, while the lowest was 14.8, occurring in both 1975 and 1976. United States live birth rates were above those observed in Michigan without exception from 1909 to 1941. Between 1942 and 1947, national rates were above those for the state twice. National birth rates were below Michigan rates from 1948 through 1974. For the past six years the rate for the nation has been above that observed in Michigan. In 1980 the provisional rate for the United States was 16.2 (Table 1.2).

FERTILITY

The crude birth rates examined above are useful statistics for gauging overall trends in live births for specific geographic areas. Where attempts are made to interpret such trends, however, crude birth rates can be misleading. These rates do not incorporate specifically the size of the population capable of bearing children. This population subset, generally considered to be women between the ages of 15 through 44, does not always maintain a stable relationship with the total population. A measure for analyzing changing birth patterns that is more exact is the fertility rate. Since the fertility rate relates the number of live births to the female population of childbearing age,

FIGURE 1.2 - Live Birth Rates, Michigan Residents, 1900-1980 And United States Residents[1], 1909-1980



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[1] U.S. rates prior to 1909 are not available; U.S. 1980 figure is provisional.

Table 1.2
Live Births and Crude Birth Rates, Michigan and United States Residents, Selected Years, 1900-1980[1]

UNITED STATES			MICHIGAN	
LIVE BIRTHS	RATE	YEAR	LIVE BIRTHS	RATE
N.A.	N.A.	1900	43,699	18.1
2,777,000	30.1	1910	64,109	22.8
2,950,000	27.7	1920	92,245	25.1
2,618,000	21.3	1930	98,882	20.4
2,559,000	19.4	1940	99,106	18.9
3,632,000	24.1	1950	160,055	25.1
4,257,850	23.7	1960	195,056	24.9
4,268,326	23.3	1961	192,825	24.4
4,167,362	22.4	1962	182,790	23.0
4,098,020	21.7	1963	178,871	22.3
4,027,490	21.0	1964	175,103	21.6
3,760,358	19.4	1965	166,464	20.3
3,606,274	18.4	1966	165,794	19.9
3,520,959	17.8	1967	162,756	18.9
3,501,564	17.5	1968	159,058	18.3
3,600,206	17.8	1969	165,760	19.0
3,731,386	18.4	1970	171,667	19.3
3,555,970	17.2	1971	162,244	18.1
3,258,411	15.6	1972	146,854	16.3
3,136,965	14.9	1973	141,550	15.6
3,159,958	14.9	1974	137,414	15.1
3,144,198	14.8	1975	133,931	14.7
3,167,788	14.8	1976	131,378	14.4
3,326,632	15.4	1977	138,416	15.1
3,333,279	15.3	1978	138,802	15.1
3,494,398	15.9	1979	144,452	15.6
3,598,000 Pr.	16.2 Pr.	1980	145,162	15.7

1 - Michigan's rates for 1971-1979 have been recalculated using revised population estimates.

valid comparisons for various periods of time and various locations are possible.

A comparison of fertility rates for Michigan with those for the United States is presented in Table 1.3. The crude birth rate changes observed understate the recent decline in fecundity for both regions. Since 1960 the crude birth rate in Michigan has dropped 36.9 percent, while the fertility rate in 1980 was 46.1 percent below the 1960 rate. For the United States over this same period the crude birth rate declined 31.6 percent and the fertility rate fell by 41.4 percent. The proportion of the population in the childbearing ages has increased over this 20 year period.

Figure 1.3 displays the changes in the total fertility rate between 1920 and 1980 for Michigan and the United States (see also Table 4.4). The total fertility rate is a hypothetical measure of the number of live births that would occur to each 1,000 women during their reproductive life, if these women experienced the age-specific birth rates observed in a given year. Michigan's total fertility rate has generally paralleled that of the nation. The Michigan rate dropped from 3,195.5 in 1920 to 2,006.5 in 1933 and then increased between 1933 and 1957, reaching 4,100.0 in the latter year. Since 1957, the total fertility rate in Michigan has declined to a low of 1,709.5 in 1976. Between 1976 and 1980 the total fertility rate for Michigan increased by 3.0 percent. The rate was 1,761.5 in 1980 for Michigan and 1,856.4 in 1979 for the nation.

Since 1973 both Michigan and national total fertility rates have been below 2,000. A total fertility rate of over 2,000 is necessary for replacement of the parents since not all women survive the reproductive years nor do all children survive to adulthood. If the total fertility rate falls below 2,000 for a long period, a natural decrease in population will eventually result. It should be noted that although the total fertility rate has been below 2,000 since 1973 the rate of natural increase for Michigan remains positive. Over the period 1973 through 1980 there were 508,729 persons added to the population of Michigan through the excess of births over deaths.

Zero population growth means that the numbers of deaths and live births are equal so that, apart from migration, the population remains constant. To achieve zero population growth in the short run the birth rate would have to decline by 48 percent or the death rate increase by 94 percent or some combination of those changes must occur.

RACIAL COMPOSITION

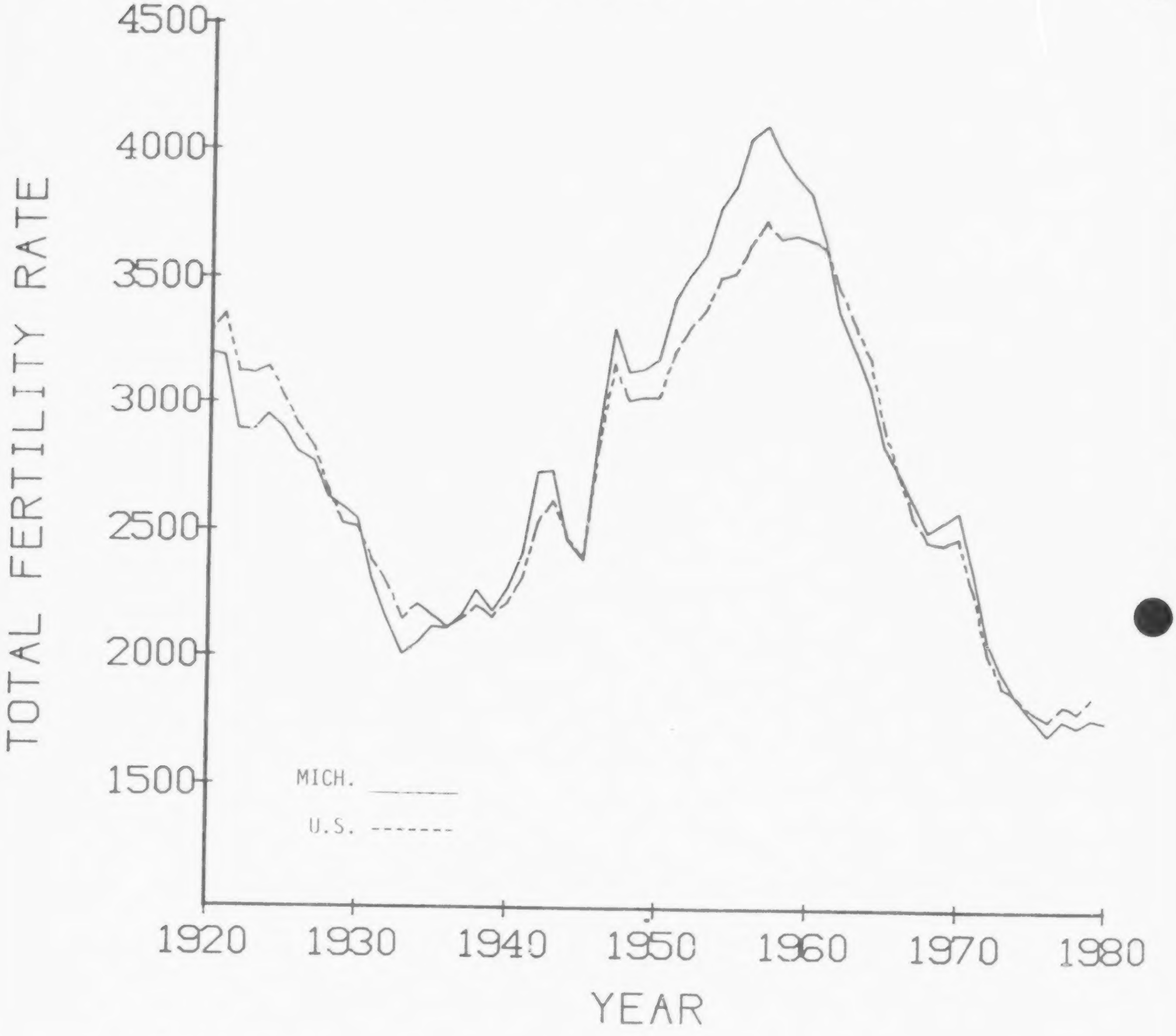
In the period 1970 through 1980, the racial composition

Table 1.3
Fertility Rates, Michigan and United States Residents, Selected Years, 1900-1980[1]

FERTILITY RATE UNITED STATES	YEAR	FERTILITY RATE MICHIGAN
-----	1900	78.5
126.8	1910	99.0
117.9	1920	111.6
89.2	1930	87.6
79.9	1940	78.9
106.2	1950	110.5
118.0	1960	123.1
117.2	1961	119.0
112.2	1962	110.8
108.5	1963	106.6
105.0	1964	102.6
96.6	1965	95.9
91.3	1966	94.0
87.6	1967	90.8
85.7	1968	87.3
86.5	1969	89.6
87.9	1970	91.7
81.8	1971	84.5
73.4	1972	75.1
69.2	1973	71.2
68.4	1974	68.0
66.7	1975	65.5
65.8	1976	63.5
67.8	1977	65.9
66.6	1978	65.0
68.5	1979	66.6
69.2 (Pr.)	1980	66.3

1 - Michigan's rates for 1971-1979 have been recalculated using revised population estimates.

FIGURE 1.3 Total Fertility Rates[1], Michgan and United States Residents, 1920-1980[2]



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[1] Total fertility rate is total children to 1,000 women in their lifetime assuming constant live birth rates.

[2] 1980 data for U.S. not available.

of live births in Michigan changed. Live births of white persons declined from 83.8 percent of all live births in 1970 to 82.0 percent in 1980. Live births of black persons increased from 15.7 percent of the total in 1970 to 16.6 percent in 1980. Live births of all other races increased from 0.4 percent in 1970 to 1.2 percent in 1980. It should be noted that Indians from India were classified as white before 1978 and among other races since 1978. In absolute terms, the numbers of births of black and white infants declined between 1970 and 1976, with an especially sharp decline observed in births of white infants between 1970 and 1972. Between 1976 and 1980 the number of live births of white and black infants increased by 10.4 percent and 8.0 percent respectively. The number of live births of American Indians and Filipinos increased between 1970 and 1980, as did those in the category of other races (Table 1.4).

Table 1.5 provides a comparison between crude birth rates and fertility rates for whites and other races in Michigan for the period since 1970. In 1970 the crude birth rate for other than white persons was 44.6 percent above that for whites. By 1972, this percentage had increased to 57.9 percent. In 1974, the percent dropped sharply to 42.3, and by 1980 it had fallen to 23.2. Paralleling the trends in numbers of live births, the crude birth rates for both groups declined between 1970 and 1976. Since 1976 the crude birth rate for white persons increased by 10.2 percent, while that for other than white persons remained essentially unchanged. The crude birth rate for white persons in 1980 was 17.9 percent below that observed in 1970 while the rate for the other than white group was 30.1 percent below the rate for 1970.

The fertility rates contained in Table 1.5 reveal that there are important differences in population structure for white persons compared to those of all other races. By comparing live births to the respective numbers of women aged 15-44 for these two groups, the relative differences in rates decrease. The fertility rate for other than white persons was 33.1 percent above the rate for white persons in 1970 and 15.3 percent higher in 1980. Since 1970 the fertility rate for other than white persons has declined 36.4 percent compared with a 26.6 percent drop for white persons.

AGE OF MOTHER

In 1980 49.3 percent of all live births were to women less than 25 years of age. Only 0.5 percent occurred to women 40 or more years of age. The median age of mothers was 25 years. Mothers of other than white infants were younger (median 23 years) than mothers of white children (median 25 years). Approximately 58 percent of the other

Live Births by Infant's Race[1] or National Origin, Michigan Residents, 1970-1980

Year	Total All Races	White	Black	American Indian	Chinese	Filipino	Other[2]
1970	171,667	143,871	26,957	299	151	91	188
1971	162,244	134,165	27,245	313	135	101	177
1972	146,854	119,787	26,215	316	124	109	197
1973	141,550	114,878	25,741	302	124	121	187
1974	137,414	112,474	23,328	270	116	144	244
1975	133,931	109,718	23,224	294	151	138	226
1976	131,378	107,907	22,349	368	169	166	243
1977	138,416	114,042	23,195	431	157	153	276
1978	138,802	114,217	23,025	377	185	148	672
1979	144,452	118,671	24,010	435	150	160	820
1980	145,162	119,103	24,127	481	197	174	891

1 - Births of unknown race included in total only. Persons of Spanish or of Mexican-American descent are included with white.

2 - Includes Japanese, Hawaiian, other Asian or Pacific Islander. Indians from India were counted as "White" from 1970-1977, and with "Other" in 1978, 1979, and 1980.

Table 1.5

Crude Birth Rates and Fertility Rates by Race,[1] Michigan Residents, 1970-1980[2]

WHITE RACE		YEAR	ALL OTHER RACES	
CRUDE BIRTH RATE	FERTILITY RATE		CRUDE BIRTH RATE	FERTILITY RATE
18.4	88.0	1970	26.6	117.1
17.0	80.3	1971	25.7	111.4
15.2	70.7	1972	24.0	102.7
14.5	67.0	1973	22.8	96.8
14.2	64.8	1974	20.2	84.7
13.9	62.7	1975	19.6	81.6
13.7	61.2	1976	18.5	76.5
14.5	63.9	1977	18.7	76.6
14.5	63.2	1978	18.4	74.5
15.1	64.8	1979	18.7	75.4
15.1	64.6	1980	18.6	74.5

1 - Births of unknown race are excluded.

2 - Rates for 1971-1979 have been recalculated using revised population estimates.

than white infants were born to women aged 24 or less compared to 47.4 percent of the white infants. This differential is the result of the relatively large percentage of other than white live births to women at ages 15-19 (Table 1.6).

The total number of live births declined by 15.4 percent between 1970 and 1980 (Table 1.7). The largest relative declines occurred in the age groups over 34 and under 20. The age group 20-24 also experienced a decline (22.3 percent) greater than that for women of all ages. The number of live births to women 25-29 was slightly greater in 1980 than in 1970, while there was a 10.6 percent increase in live births to women 30-34 years of age over the decade.

Table 1.7 also provides the age distribution of the childbearing population in 1970 and 1980. Examination of the table shows that the declines in numbers of live births for most age groups occurred despite an increase over the decade in the number of women within those age groups. The largest relative increase in population occurred in the age group 30-34, the age group with the greatest increase in live births between 1970 and 1980. The only group to experience a population decline (11.6 percent) was the 40-44 year age group.

AGE-SPECIFIC LIVE BIRTH RATES

As displayed in Table 1.8, a substantial reduction in the age-specific birth rates for Michigan females across all age groups has occurred since 1970. The greatest relative decreases in birth rates between 1970 and 1980 were for women over 34 years of age. Birth rates for women under age 25 also declined more than did the birth rate for women of all ages. The decline in the birth rate for women 30-34 years old was 23.4 percent, the smallest decrease observed for any age interval.

Figure 1.4 displays age-specific live birth rates for the period 1970-1980. Birth rates in all age groups dropped during the first half of the decade. For women under 20 and for women over 39 years the birth rates declined consistently throughout the decade. Birth rates for women in the age groups 30-34 and 35-39 have increased by 24.5 percent and 9.3 percent respectively since the decade-low rates of 1976. The birth rates for women between 20 and 29 years of age have remained stable during the latter part of the decade.

In 1970, women aged 20-24 had the highest birth rate of any age group, 14.3 percent higher than that of women aged 25-29. In 1976, 1979, and 1980 the birth rate of women in the 25-29 year age group was above that of women aged 20-24.

Table 1.6
Live Births and Percent Distribution by Age of Mother and Race of Child, Michigan Residents, 1980

AGE OF MOTHER	TOTAL		RACE OF CHILD					
			WHITE		ALL OTHER		NOT STATED	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Under 15 Years	331	0.2	108	0.1	223	0.9	-	-
15-19 Years	20,000	13.8	14,082	11.8	5,904	22.8	14	7.4
20-24 Years	51,218	35.3	42,244	35.5	8,902	34.4	72	38.1
25-29 Years	47,113	32.5	40,447	34.0	6,609	25.5	57	30.2
30-34 Years	21,024	14.5	17,793	14.9	3,191	12.3	40	21.2
35-39 Years	4,692	3.2	3,807	3.2	880	3.4	5	2.6
40 or More Years	762	0.5	601	0.5	161	0.6	-	-
Not Stated	22	0.0	21	0.0	-	-	1	0.5
[illegible]tal	145,162	100.0	119,103	100.0	25,870	100.0	189	100.0
Median Age at Last Birthday	25	000	25	000	23	000	25	000

Table 1.7
Live Births and Population of Women by Age, Michigan Residents, 1970 and 1980

Age Group	Live Births			Population		
	1970	1980	Percent Change	1970	1980	Percent Change
Under 20 Years[1]	30,253	20,331	-32.8	436,204	446,066	+2.3
20-24 Years	65,892	51,218	-22.3	373,905	453,004	+21.2
25-29 Years	46,262	47,113	+1.8	300,095	407,648	+35.8
30-34 Years	19,003	21,024	+10.6	249,275	360,054	+44.4
35-39 Years	7,904	4,692	-40.6	243,579	286,615	+17.7
40 and Over[2]	2,341	762	-67.4	268,896	237,663	-11.6
All Ages[3]	171,667	145,162	-15.4	1,871,954	2,191,050	+17.0

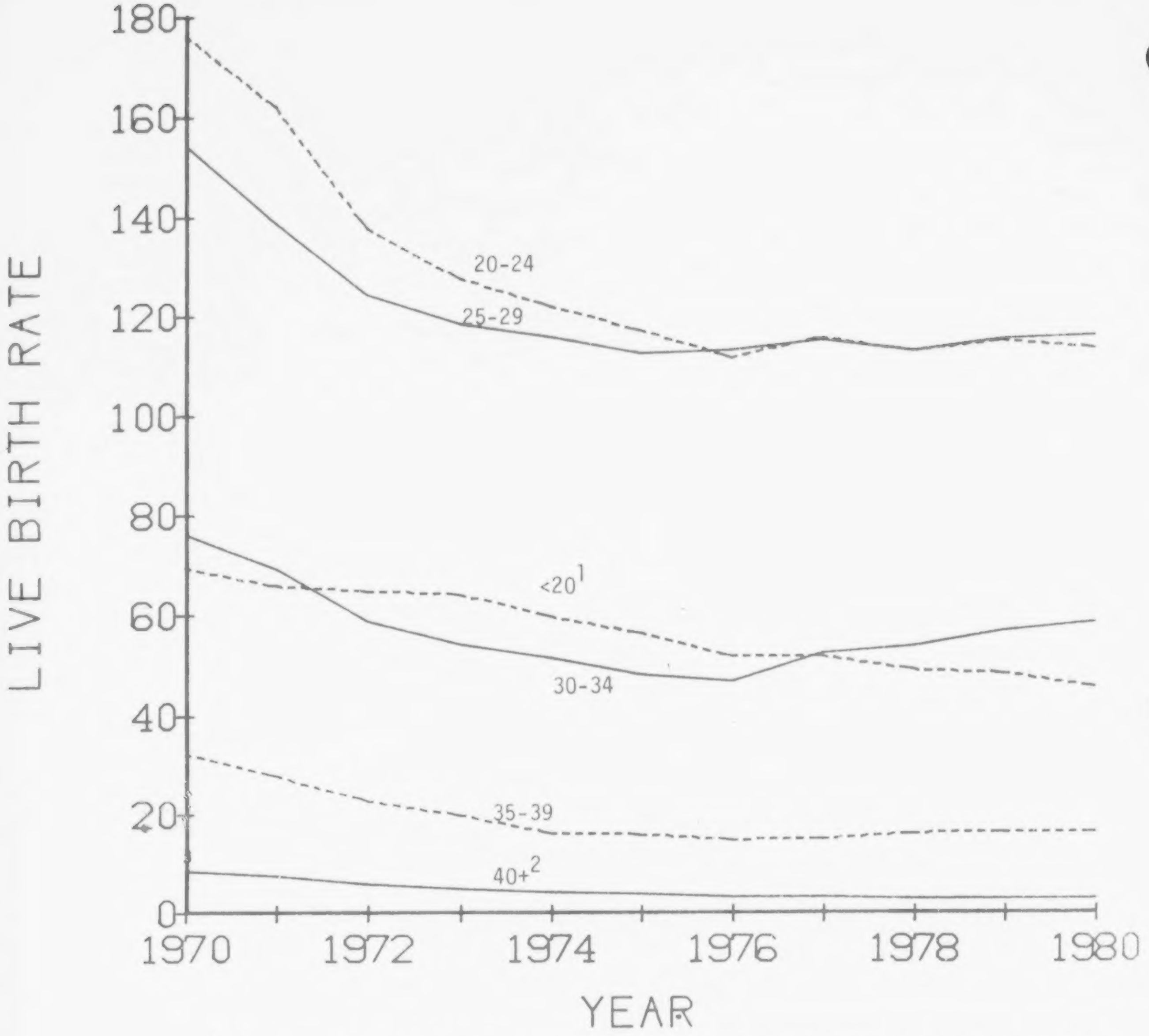
1 - Population shown is for females 15-19.
2 - Population shown is for females 40-44.
3 - Population shown is for females 15-44. Live births with age not stated are included only in the total.

Table 1.8
Age-Specific Live Birth Rates by Race, Michigan Residents, 1970 and 1980

AGE GROUP	TOTAL			RACE[1]					
				WHITE			ALL OTHER[1]		
	1970	1980	% Change in Rate[5]	1970	1980	% Change in Rate[5]	1970	1980	% Change in Rate[5]
Under 20[2] Years	69.4	45.6	(34.3)	56.9	37.9	(33.4)	154.1	85.8	(44.3)
20-24 Years	176.2	113.1	(35.8)	172.9	111.2	(35.7)	197.3	121.9	(38.2)
25-29 Years	154.2	115.6	(25.0)	156.0	119.4	(23.5)	140.5	95.8	(31.8)
30-34 Years	76.2	58.4	(23.4)	75.6	59.1	(21.8)	80.1	54.3	(32.2)
35-39 Years	32.4	16.4	(49.4)	31.2	15.6	(50.0)	40.9	21.0	(48.7)
40 or Over[3]	8.7	3.2	(63.2)	8.1	2.9	(64.2)	12.9	4.9	(62.0)
Total[4]	91.7	66.3	(27.7)	88.0	64.6	(26.6)	117.1	74.5	(36.4)

1 - Data on race not stated included only in total.
2 - Age-specific birth rates for under 20 based on female population 15-19.
3 - Age-specific birth rates for 40 and over based on female population 40-44.
4 - Total birth rate (fertility rate) based on female population 15-44.
5 - Parentheses () indicate a decline.

FIGURE 1.4 Age-Specific Live Birth Rates, Michigan Residents, 1970-1980



[1] Based on live births to women under 20 and population of females 15-19.

[2] Based on live births to women 40 or over and population of females 40-44.

In 1980 the birth rate for the 25-29 year age group was 2.2 percent higher (Table 4.4).

Table 1.8 displays age-specific live birth rates for white women and women of all other races for the years 1970 and 1980. Generally, rates for other than white women were above those for white women. However, the live birth rate for white women between 25 and 29 years exceeded that for other than white women by 11.0 percent and 24.6 percent respectively in 1970 and 1980. In 1980 the rate for white women between 30 and 34 years also exceeded that for their other than white counterparts (8.8 percent). Live birth rates declined over these ten years across all ages for both racial categories. The largest relative decreases in these rates were experienced by women of both racial groups who were 35 years or older and by other than white women under 20 years of age. The smallest declines were for white women aged 25-34.

BIRTH ORDER

The percent of live births which are first order births is displayed in Figure 1.5 for Michigan and the United States for the period since 1960. Between 1960 and 1970, the percent of first order births increased from 22.9 to 37.4 in Michigan and by 1980 the percent had increased to 42.4. However, the number of first births declined by 15.9 percent between 1970 and 1976 (Table 1.9). Since 1976 the number of first births has increased 13.9 percent. The trend in first births has been similar for the United States.

The distribution of Michigan resident live births by live birth order is displayed in Tables 1.10 and 1.11 for the years 1970 and 1980. There has been a considerable shift in recent years toward smaller families. First and second order live births comprised 64.7 percent of all live births in 1970 and 74.4 percent in 1980. On the other hand, 18.8 percent of all live births in 1970 were fourth or higher order live births. In 1980 the figure was 9.2 percent. The greatest relative decline occurred in fifth or higher order live births. These constituted 10.1 percent of all live births in 1970 compared to 3.5 percent in 1980.

Within each age group first and second order births comprised a greater percent of all births in 1980 than in 1970, with the more pronounced shifts occurring in the age groups of older women. For women 30-39 years of age first and second order births comprised 21.3 percent of all births in 1970 and 47.7 percent in 1980. In 1980 32.5 percent of all live births to women 25-29 years of age were first births, compared to 19.5 percent in 1970.

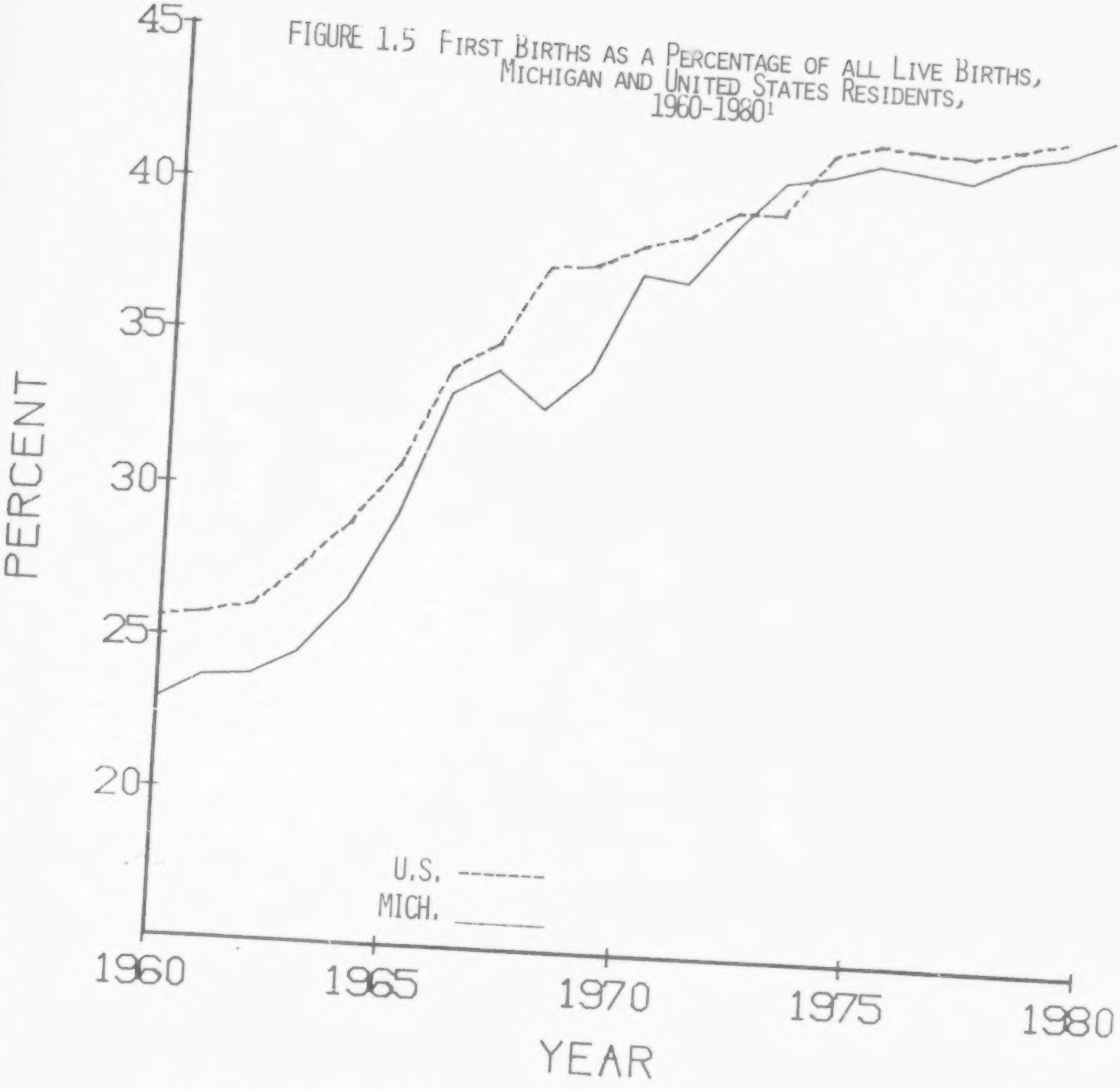


FIGURE 1.5 FIRST BIRTHS AS A PERCENTAGE OF ALL LIVE BIRTHS, MICHIGAN AND UNITED STATES RESIDENTS, 1960-1980[1]

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[1] 1980 Data for U.S. not available.

Table 1.9
First Births, Michigan and United States Residents, Selected Years, 1960-1980

United States		Year	Michigan	
First Births	Percent of All Births		First Births	Percent of All Births
1,090,152	25.6	1960	44,711	22.9
1,157,386	30.8	1965	48,660	29.2
1,430,680	38.3	1970	64,222	37.4
1,375,668	38.7	1971	60,413	37.2
1,289,257	39.6	1972	57,477	39.1
1,243,358	39.6	1973	57,411	40.6
1,314,194	41.6	1974	56,233	40.9
1,319,126	42.0	1975	55,348	41.3
1,324,811	41.8	1976	54,003	41.1
1,387,143	41.7	1977	56,622	40.9
1,401,491	42.0	1978	57,767	41.6
1,479,260	42.3	1979	60,424	41.8
---	----	1980	61,516	42.4

Table 1.10
Live Births by Live Birth Order and Age of Mother, Michigan Residents, 1970

LIVE BIRTH ORDER	AGE OF MOTHER							
	UNDER 20 YEARS	20-24 YEARS	25-29 YEARS	30-39 YEARS	40 OR MORE YEARS	NOT STATED	ALL AGES	MEDIAN AGE AT LAST BIRTHDAY
First Birth	24,061	29,099	9,017	1,918	119	8	64,222	21
Second Birth	5,221	23,776	13,918	3,817	142	1	46,875	23
Third Birth	813	9,267	12,261	5,551	227	-	28,119	26
Fourth Birth	119	2,623	6,400	5,407	324	2	14,875	28
Fifth Birth or Greater	13	1,060	4,634	10,188	1,527	1	17,424	32
Not Stated	26	67	32	26	2	-	153	23
All Birth Orders	30,253	65,892	46,262	26,907	2,341	12	171,667	24

Table 1.11
Live Births by Live Birth Order and Age of Mother, Michigan Residents, 1980

LIVE BIRTH ORDER	AGE OF MOTHER							
	UNDER 20 YEARS	20-24 YEARS	25-29 YEARS	30-39 YEARS	40 OR MORE YEARS	NOT STATED	TOTAL	MEDIAN AGE AT LAST BIRTHDAY
First Birth	16,340	25,236	15,297	4,573	60	10	61,516	22
Second Birth	3,406	17,917	17,388	7,704	80	4	46,499	25
Third Birth	462	5,955	9,442	6,818	106	5	22,788	27
Fourth Birth	50	1,427	3,204	3,479	118	1	8,279	29
Fifth Birth or Greater	16	382	1,424	2,915	387	1	5,125	32
Not Stated	57	301	358	227	11	1	955	26
All Birth Orders	20,331	51,218	47,113	25,716	762	22	145,162	25

The median age of mothers having their first child increased from 21 to 22 between 1970 and 1980. For mothers having their second child, the median age increased from 23 to 25. The median ages for mothers having their third or fourth child each increased by one year between 1970 and 1980.

First births to women 25 years of age or older comprised 17.2 percent of all first births in 1970 and 32.4 percent in 1980. Similarly, second order births to women 25 years or older increased from 38.1 percent of all second order births in 1970 to 54.1 percent in 1980. This change in mother's age at birth is reflective of the emergence of the 25-29 year age group as the group with the highest age-specific birth rate (Table 1.8).

INTERPREGNANCY TIME PERIOD

In 1970 50 percent of all live births to women with prior terminations were reported as being spaced at least 2 years and 7 months apart. By 1975 the median time span had increased to 2 years and 9 months. In 1976 and 1977 the median value was unchanged. In 1978 the median fell to 2 years and 8 months and for 1979 and 1980 the median was 2 years and 7 months. This trend is reflective of the changes in age-specific live birth rates of women between the ages of 30 and 39 (see Figure 1.4).

Although the median time span in 1980 is the same as that in 1970, there has been a shift in the distribution of birth spacings over the decade (Table 1.12). Among women reporting prior pregnancy terminations, the relative frequency of births occurring five or more years after termination of the most recent prior pregnancy increased from 16.1 percent in 1970 to 17.3 percent in 1980. A corresponding decline in relative frequency occurred among births reported as occurring between 3 and 5 years after the most recent prior pregnancy termination. The relative frequencies of shorter intervals were essentially the same in 1970 and 1980.

In 1980 women having live births whose most recent prior termination was a fetal death had a median time span of 1 year and 9 months between their previous termination and a live birth (Table 1.13). This compares to a median of 2 years 9 months for prior live births. Although 1 to 2 years was the modal time span for both groups, the percent of women with prior fetal deaths in this interval (46.6) was much larger than that for women with prior live births (28.8). The greatest relative difference was associated with time spans of less than one year. A spacing of less than one year was observed for 12.0 percent of all women reporting their most recent prior pregnancy as a fetal

Table 1.12
Live Births to Women Reporting Prior Pregnancy Terminations[1] by Time Span Between Last and Current Termination, Michigan Residents, 1970 and 1980

TIME SPAN IN YEARS	1970		1980	
	NUMBER	PERCENT	NUMBER	PERCENT
Total..................	108,516	100.0	86,418	100.0
Less Than One..........	3,960	3.6	3,148	3.6
1 < 2..................	34,715	32.0	27,756	32.1
2 < 3..................	26,589	24.5	21,079	24.4
3 < 5..................	25,784	23.8	19,498	22.6
5 or More..............	17,468	16.1	14,937	17.3
Median Time Span	2 years 7 months	000	2 years 7 months	000

[1] - Terminations with time spans of zero years (i.e., second or later births in plural deliveries) and terminations with unknown time spans are excluded.

Table 1.13
Live Births to Women Reporting Prior Pregnancy Terminations[1] by Time Span Between Last and Current Termination and by Whether Prior Termination Resulted in a Live Birth or a Fetal Death[2], Michigan Residents, 1980

TIME SPAN IN YEARS	TOTAL		PRIOR FETAL DEATH		PRIOR LIVE BIRTH	
	NUMBER	PERCENT	NUMBER	PERCENT	NUMBER	PERCENT
TOTAL................	86,418	100.0	16,131	100.0	70,287	100.0
Less Than One........	3,148	3.6	1,938	12.0	1,210	1.7
1 < 2................	27,756	32.1	7,525	46.6	20,231	28.8
2 < 3................	21,079	24.4	2,838	17.6	18,241	26.0
3 < 5................	19,498	22.6	2,301	14.3	17,197	24.5
5 or More............	14,937	17.3	1,529	9.5	13,408	19.1
Median Time Span.....	2 years 7 months	000	1 year 9 months	000	2 years 9 months	000

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1 - Terminations with time spans of zero years (i.e., second or later births in plural deliveries) and terminations with unknown time spans are excluded.

2 - Fetal death as defined for the pregnancy history on the birth record is a fetal death of any gestational age.

death. This compares to 1.7 percent of all women reporting their most recent prior pregnancy as a live birth.

PRENATAL CARE

The most common month of pregnancy in which women first obtain prenatal care is the second month. In 1980 nearly 40 percent of all women having live births initiated care during the second month. The most common number of prenatal visits was twelve, and 59.3 percent of all live births were to women receiving 10-14 prenatal visits. Table 1.14 indicates the relationship between the month of pregnancy prenatal care began and the number of prenatal visits. For births in which the mother began receiving care in the first or second month, the median number of visits was 12. The median number of visits is lower as prenatal care begins later.

The proportion of live births to women who initially obtained prenatal care in the first trimester of pregnancy increased from 77.0 percent in 1979 to 77.7 percent in 1980. This percent has increased steadily since 1970 when the figure was 69.0 (Figure 1.6).

There were also small but steady increases in the percent of births to women receiving care prior to the sixth month of pregnancy over the period 1970-1975. In 1970, 86.0 percent of all live births were to women who received care prior to the sixth month of pregnancy. By 1975, this had risen to 91.6 percent. Since 1975 the figure has remained at that level. In 1980 the figure was 91.7 percent.

The proportion of births to women receiving early prenatal care varied considerably by race of infant and age of mother (Table 1.15). In 1980, 80.6 percent of white infants compared to 64.5 percent of other than white infants were born to mothers who began their prenatal care in the first trimester. Women 25-29 and 30-34 years of age sought care most promptly, with 84.5 percent and 84.3 percent, respectively, obtaining prenatal care in the first three months. The proportion of births to women receiving early prenatal care declined as maternal age increased or decreased, falling to 69.3 percent for women 40 years or over. Less than 6 in 10 (57.9 percent) mothers 15-19 years of age received care early, while only 28.7 percent of mothers under age 15 received care during the first trimester. Similar patterns by age of mother in this proportion are evident for white and other than white infants.

The time prenatal care began varied with live birth order (Table 1.16). The proportion of births to women who began care during the first trimester was highest for second

Table 1.14
Live Births by Month Prenatal Care Began and Number of Prenatal Visits, Michigan Residents, 1980

MONTH CARE BEGAN	TOTAL	NUMBER OF VISITS							
		NONE	1-4	5-9	10-14	15-19	20 or OVER	UNKNOWN	MEDIAN NUMBER OF VISITS
Total	145,162	938	5,074	31,120	86,051	13,343	2,541	6,095	12
No Care	938	938	-	-	-	-	-	-	-
First	17,075	-	132	1,490	10,829	3,441	769	414	12
Second	56,972	-	414	7,414	40,483	6,698	1,098	865	12
Third	38,681	-	575	9,067	25,547	2,456	463	573	11
Fourth	13,849	-	661	5,899	6,375	498	134	282	10
Fifth	6,538	-	771	3,674	1,778	140	55	120	8
Sixth	3,367	-	729	1,949	563	40	12	74	7
Seventh	2,052	-	749	1,073	172	17	4	37	5
Eighth	1,045	-	663	313	50	5	1	13	4
Ninth	374	-	272	45	34	6	-	17	2
Unknown	4,271	-	108	196	220	42	5	3,700	9

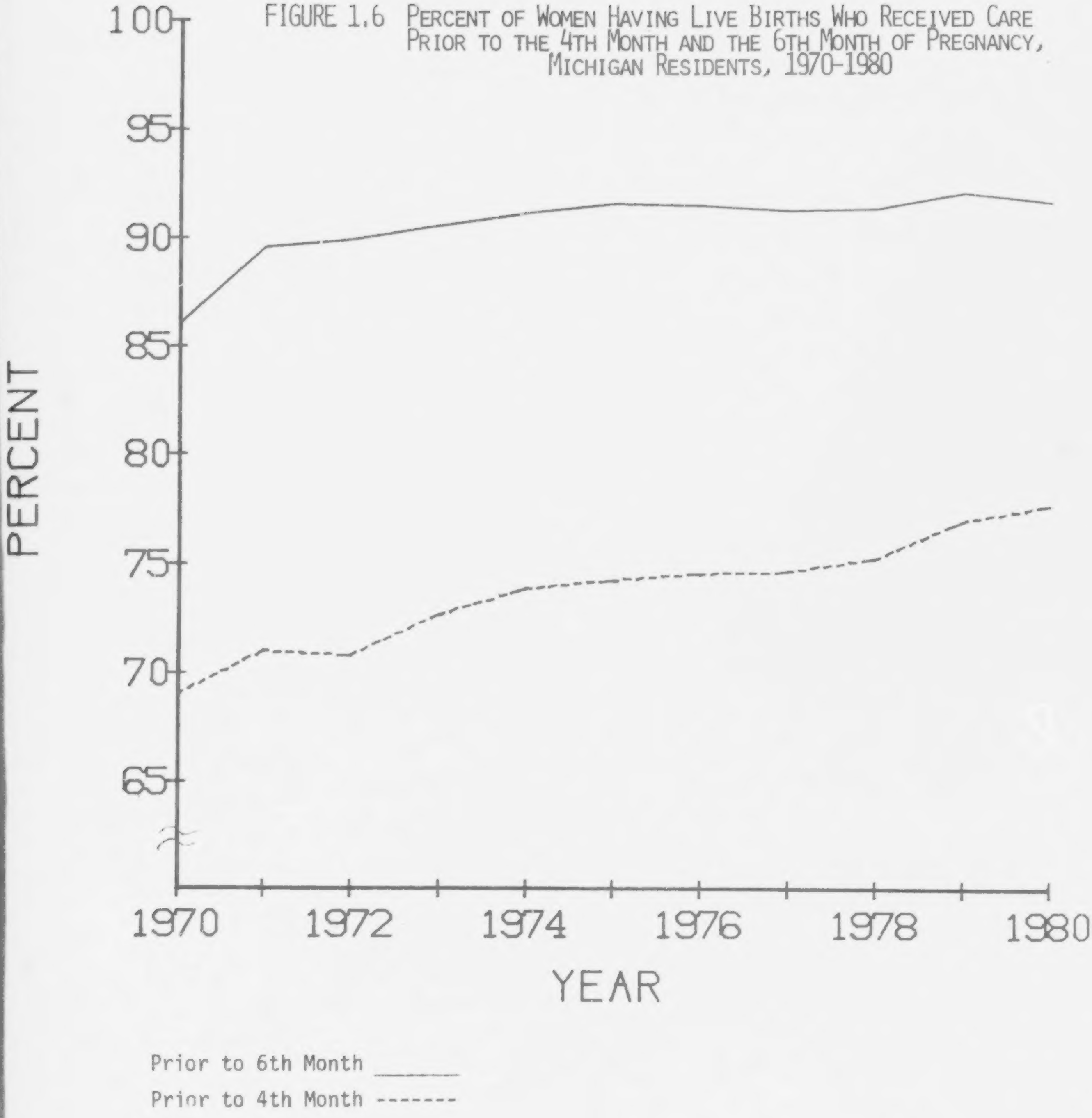


FIGURE 1.6 PERCENT OF WOMEN HAVING LIVE BIRTHS WHO RECEIVED CARE PRIOR TO THE 4TH MONTH AND THE 6TH MONTH OF PREGNANCY, MICHIGAN RESIDENTS, 1970-1980

Table [illegible]15
Numbers and Percents of Live Births With Prenatal Care Beginning in the First Trimester by Age of Mother and Race of Child, Michigan Residents, 1980

AGE OF MOTHER	TOTAL		RACE OF CHILD					
			WHITE		ALL OTHER		NOT STATED	
	Number	Percent[1]	Number	Percent[1]	Number	Percent[1]	Number	Percent[1]
Under 15 Years............	95	28.7	32	29.6	63	28.3	-	*
15-19 Years...............	11,579	57.9	8,491	60.3	3,081	52.2	7	50.0
20-24 Years...............	39,328	76.8	33,503	79.3	5,806	65.2	19	26.4
25-29 Years...............	39,796	84.5	35,089	86.8	4,691	71.0	16	28.1
30-34 Years...............	17,722	84.3	15,394	86.5	2,321	72.7	7	17.5
35-39 Years...............	3,667	78.2	3,051	80.1	614	69.8	2	*
40 Years or Over..........	528	69.3	422	70.2	106	65.8	-	*
Not Stated................	13	59.1	13	61.9	-	*	-	*
Total.....................	112,728	77.7	95,995	80.6	16,682	64.5	51	27.0

1 - Percent denominators obtained from Table 1.6.

Table 1.16
Live Births by Month of Pregnancy Prenatal Care Began and Live Birth Order, Michigan Residents, 1980

MONTH OF PREGNANCY CARE BEGAN	TOTAL	LIVE BIRTH ORDER					
		1ST	2ND	3RD	4TH	5TH OR GREATER	NOT STATED
TOTAL...........	145,162	61,516	46,499	22,788	8,279	5,125	955
No Care.........	938	355	231	129	93	110	20
1st Month.......	17,075	7,390	5,727	2,518	868	485	87
2nd Month.......	56,972	24,333	19,202	8,855	2,855	1,461	266
3rd Month.......	38,681	16,053	12,502	6,332	2,262	1,314	218
4th Month.......	13,849	5,847	4,071	2,305	921	627	78
5th Month.......	6,538	2,860	1,754	1,012	475	401	36
6th Month.......	3,367	1,504	880	467	257	225	34
7th Month.......	2,052	940	524	280	138	150	20
8th Month.......	1,045	424	276	167	82	86	10
9th Month.......	374	147	101	57	32	36	1
Not Stated......	4,271	1,663	1,231	666	296	230	185
Percentage Beginning Care In First Trimester.......	77.7	77.7	80.5	77.7	72.3	63.6	59.8
Percentage Without Care During First Six Months......	3.0	3.0	2.4	2.8	4.2	7.5	5.3

order live births (80.5) and lowest for fifth or higher order births (63.6). Conversely, the proportion of births to women who began care during the third trimester, or received no care, was lowest (2.4 percent) for second order live births. This figure increased with the number of previous live births. Among fifth order live births 7.5 percent were to women who had received no care by the beginning of the 7th month of the pregnancy.

The proportion of births to mothers having ten or more prenatal visits was 70.2 percent in 1980, compared to 68.3 percent in 1979. This statistic varied considerably by race. While mothers of 73.8 percent of white infants had at least ten prenatal visits, the percent was only 54.1 for other than white infants (Table 1.17). For other than white infants this percent declined between 1979 and 1980 (55.1 to 54.1), while for white infants it increased (71.2 to 73.8). The median number of prenatal visits was 12 for mothers of white children and 10 for mothers of other than white children (excluding those having an unknown number of visits). The mean number of prenatal visits was 11.2 for mothers of white infants, 10.9 percent higher than the mean of 10.1 visits for mothers of infants of other races.

In 1980, 938 resident live births or 6.5 of every 1,000 live births occurred with the mother having had no prenatal care. This figure includes only those where it was specified that the mother received no prenatal care. The comparative statistic was 6.2 in 1979 and 12.3 in 1971. Those who received no prenatal care were for the most part younger mothers (median age of 21). Also, the lack of prenatal care is disproportionately high among mothers of other than white infants. The ratio of live births in which the mother received no prenatal care to the total number of live births was four times as large for other than white infants as for white infants in 1980 (Table 1.18).

BIRTH WEIGHT

The mean weight for all live births was 3,354 grams or approximately 7 pounds 6 ounces. The median weight was 3,380 grams or about 7 pounds 7 ounces (Table 1.19).

A subgroup of major importance when analyzing birth weight trends is the category of infants weighing 2,500 grams or less (approximately 5 pounds 8 ounces or less) at birth. Such infants have historically experienced higher mortality in their first year of life than heavier infants. In 1980, approximately 69 of every 1,000 live births weighed 2,500 grams or less (Table 1.20).

The proportion of low birth weight infants varies with the race of the child, the age of the mother, and the amount

Table 1.17
Live Births and Percent Distribution by Number of the Mother's Prenatal Visits and Race of Child, Michigan Residents, 1980

NUMBER OF PRENATAL VISTS	TOTAL		RACE OF CHILD					
			WHITE		ALL OTHER		NOT STATED	
	NUMBER	PERCENT	NUMBER	PERCENT	NUMBER	PERCENT	NUMBER	PERCENT
None	938	0.6	496	0.4	441	1.7	1	0.5
1-4	5,074	3.5	3,076	2.6	1,995	7.7	3	1.6
5-9	31,120	21.4	24,492	20.6	6,604	25.5	24	12.7
10-14	86,051	59.3	74,785	62.8	11,233	43.4	33	17.5
15-19	13.343	9.2	11,213	9.4	2,126	8.2	4	2.1
20 or Over	2,541	1.8	1,909	1.6	631	2.4	1	0.5
Not Stated	6,095	4.2	3,132	2.6	2,840	11.0	123	65.1
Total	145,162	100.0	119,103	100.0	25,870	100.0	189	100.0
Median Number of Visits	12	000	12	000	10	000	11	000
Mean Number of Visits	11.0	000	11.2	000	10.1	000	10.3	000

Table 1.18
Live Births With No Prenatal Care by Age of Mother and Race of Child, Michigan Residents, 1980

AGE OF MOTHER	TOTAL		RACE OF CHILD					
			WHITE		ALL OTHER		NOT STATED	
	Number	Ratio[1]	Number	Ratio[1]	Number	Ratio[1]	Number	Ratio[1]
Under 15 Years............	20	60.4	7	64.8	13	58.3	-	*
15-19 Years...............	311	15.6	166	11.8	144	24.4	1	*
20-24 Years...............	324	6.3	173	4.1	151	17.0	-	*
25-29 Years...............	166	3.5	82	2.0	84	12.7	-	*
30-39 Years...............	103	4.0	58	2.7	45	11.1	-	*
40 Years or Over..........	14	18.4	10	16.6	4	*	-	*
Total.....................	938	6.5	496	4.2	441	17.0	1	*
Median Age at Last Birthday..................	21	000	21	000	21	000	*	000

1 - Ratio per 1,000 live births. Ratio denominator obtained from Table 1.6.

Table 1.19
Live Births by Birth Weight and Race, Michigan Residents, 1980

WEIGHT AT BIRTH	TOTAL	RACE		
		WHITE	ALL OTHER	NOT STATED
500 Grams or Less..........	229	110	116	3
501-1,000 Grams............	721	456	264	1
1,001-1,500 Grams..........	899	597	300	2
1,501-2,000 Grams..........	1,974	1,320	651	3
2,001-2,500 Grams..........	6,174	4,266	1,898	10
2,501-3,000 Grams..........	23,158	16,826	6,298	34
3,001-3,500 Grams..........	52,028	42,260	9,720	48
3,501-4,000 Grams..........	42,860	37,745	5,070	45
4,001-4,500 Grams..........	13,763	12,674	1,071	18
4,501 Grams or More........	2,960	2,720	237	3
Not Stated.................	396	129	245	22
Total......................	145,162	119,103	25,870	189
Mean Weight in Grams.......	3,354	3,407	3,109	3,222
Median Weight in Grams.....	3,380	3,430	3,175	3,374

Table 1.20
Low Weight[1] Live Births and Low Birth Weight Ratios by Age of Mother and Race of Child, Michigan Residents, 1980

AGE OF MOTHER	TOTAL		RACE OF CHILD					
			WHITE		ALL OTHER		NOT STATED	
	Number	Ratio[2]	Number	Ratio[2]	Number	Ratio[2]	Number	Ratio[2]
Under 15 Years............	55	166.2	18	166.7	37	165.9	-	*
15-19 Years...............	1,920	96.0	1,113	79.0	805	136.3	2	*
20-24 Years...............	3,592	70.1	2,438	57.7	1,150	129.2	4	*
25-29 Years...............	2,776	58.9	2,010	49.7	759	114.8	7	122.8
30-39 Years...............	1,583	61.6	1,118	51.8	460	113.0	5	111.1
40 Years or Over..........	66	86.6	48	79.9	18	111.8	-	*
Not Stated................	5	227.3	4	*	-	*	1	*
Total.....................	9,997	68.9	6,749	56.7	3,229	124.8	19	100.5
Median Age at Last Birthday..................	24	000	24	000	23	000	*	000

1 - 2,500 grams or less.
2 - Ratio denominator obtained from Table 1.6.

of prenatal care the mother has received. Note that these three factors are interrelated. Very young mothers and mothers who are not white have fewer prenatal visits; women whose race is not white have higher birth rates in the younger age groups, etc. Tables 1.20 and 1.21 present data on these three variables with respect to birth weight.

The age group with the highest low birth weight ratio (166.2) was the group of mothers under 15 years of age. This ratio was lower for each succeeding age group through age group 25-29 (58.9) then increased for the older age groups to 86.6 for mothers 40 years or older (Table 1.20).

When low birth weight ratios are examined by the number of the mother's prenatal visits even more striking variations are evident. The low birth weight ratio for the highest risk group was 5.7 times that of the group with the lowest ratio. The low birth weight ratio was highest when the mother had no prenatal care (229.2). The ratio declined as the number of prenatal visits increased through 15-19 visits, where the ratio was 40.1. The low birth weight ratio was 63.8 for mothers with 20 or more prenatal visits. It is likely that a very high number of prenatal visits is associated with problems in the pregnancy (Table 1.21). For low birth weight infants the median number of the mother's prenatal visits was 9, compared to 12 for all infants. The mean number of visits for mothers of low birth weight infants was 8.9, 19.1 percent less than the mean of 11.0 for mothers of all infants. As low birth weight infants are more likely to have been born prematurely, the shorter prenatal period results in a reduction of the potential length of time for prenatal care.

Other than white infants have a substantially lower mean and median birth weight than white infants (Table 1.19). The low birth weight ratio for other than white infants is 124.8 compared with 56.7 for white infants (Table 1.21). Other than white infants and white infants show similar patterns of rising and falling ratios varying with changes in the age of the mother and frequency of prenatal visits. The low birth weight ratio for other than white infants varied from a high of 278.9 where the mother had no care to a low of 87.7 where the mother had 10-14 visits. The ratio for white infants varied from a high of 189.2 where the mother had 1-4 visits to a low of 30.7 where the mother had 15-19 prenatal visits (Table 1.21). Overall, the low birth weight ratio for other than white infants was 2.2 times the ratio for white infants. This is associated with a differential in the proportion of mothers having had fewer than 10 prenatal visits. While 23.6 percent of mothers having white infants had less than 10 prenatal visits, the corresponding figure for mothers having other than white infants was 34.9 percent (Table 1.17).

Table 1.21
Low Weight[1] Live Births and Low Birth Weight Ratios by Prenatal Visits and Race of Child, Michigan Residents, 1980

NUMBER OF PRENATAL VISITS	TOTAL		RACE OF CHILD					
			WHITE		ALL OTHER		NOT STATED	
	NUMBER	RATIO[2]	NUMBER	RATIO[2]	NUMBER	RATIO[2]	NUMBER	RATIO[2]
None........................	215	229.2	91	183.5	123	278.9	1	*
1-4........................	1,075	211.9	582	189.2	493	247.1	-	*
5-9........................	3,654	117.4	2,657	108.5	996	150.8	1	*
10-14........................	3,610	42.0	2,625	35.1	985	87.7	-	*
15-19........................	535	40.1	344	30.7	191	89.8	-	*
20 or Over................	162	63.8	97	50.8	65	103.0	-	*
Not Stated................	746	122.4	353	112.7	376	132.4	17	138.2
Total........................	9,997	68.9	6,749	56.7	3,229	124.8	19	100.5
Median Number of Visits......	9	000	9	000	8	000	*	000
Mean Number of Visits........	8.9	000	9.1	000	8.5	000	*	000

---

1 - 2500 grams or less.
2 - Ratio denominator obtained from Table 1.16.

Examination of Table 1.20 reveals that although the low birth weight ratios for white and other than white infants exhibit a similar pattern of variation by age of mother, the ratios for other than white infants vary less. For white infants the ratio associated with mothers under 15 years of age (166.7) is over three times as great as that of mothers in the 25-29 year age group (49.7). For other than white infants this differential is less than 50 percent (165.9 for mothers under 15 vs. 111.8 for mothers over 39 years). The ratios for white and other than white infants are similar for mothers under age 15 and for those age 40 or over.

Figure 1.7 displays the low birth weight ratio for Michigan and the United States over the last twenty-one years. In 1960 this ratio was 72.0 for Michigan. Between 1960 and 1966 the ratio increased, reaching a high for the 21 year period in 1966 (79.8). Since that time the ratio has generally declined. The ratio of 68.9 for 1980 is the lowest ratio in this time period. The pattern for the United States has been similar. The ratio increased from 76.9 in 1960 to 83.3 in 1966, and has since declined. In 1979 the low birth weight ratio for the nation was 69.2. The ratio for the United States was above that for Michigan each year from 1960 through 1970. Since then the ratio for the nation has been the same or lower than that of Michigan.

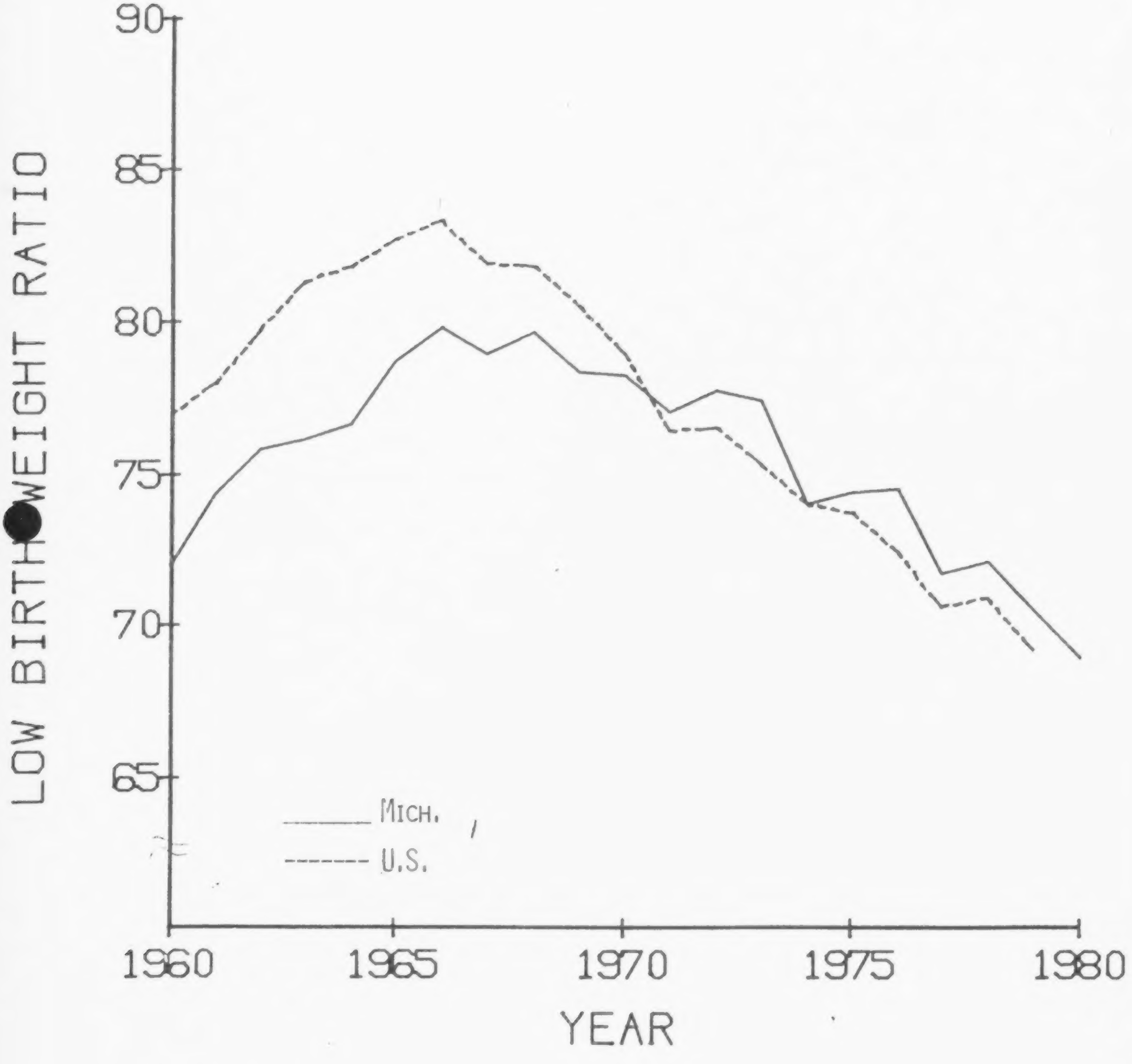
SEX OF INFANT

In 1980 51.1 percent of the infants born to Michigan residents were male. The proportion of males to females varies by race. The number of males per 1,000 females was 1,050 for white infants, 1,019 for blacks, 996 for American Indians, and 1,006 for infants of all other races (Table 1.22). For each race the low birth weight ratio for females is higher than for males. The ratio of 73.7 for females of all races is 14.8 percent above the corresponding ratio of 64.2 for males.

MOTHER'S EDUCATION

Educational attainment of women having live births in 1980 varied with their age (Table 1.23). Of all Michigan resident live births in 1980 21.0 percent were to women who had not completed high school. The majority (62.8 percent) of mothers aged less than 20 had not completed high school. The percent of mothers with fewer than 4 years of high school dropped to 20.6 for those aged 20-24 and to 9.3 for mothers aged 25-34. This percent increased to 14.7 for mothers aged 35-39 and to 25.7 for mothers 40 years or older. Conversely, age of mother varied with the level of education. The median age of the mother was 20 years for those with 9 to 11 years of education and 29 years for women

FIGURE 1.7 Low Birth Weight Ratio, Michigan and united States Residents, 1960-1980[1]



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[1] 1980 data for U.S. not available.

Table 1.22
Live Births, Low Weight Live Births, and Low Birth Weight Ratios, by Sex and Race, Michigan Residents, 1980

Race	Live Births				Low Weight Live Births			Low Birth Weight Ratios		
	Total[1]	Male	Female	Males per 1,000 Females	Total[1]	Male	Female	Total[1]	Male	Female
Total	145,162	74,161	70,998	1,045	9,997	4,763	5,233	68.9	64.2	73.7
White	119,103	61,011	58,089	1,050	6,749	3,257	3,491	56.7	53.4	60.1
Black	24,127	12,178	11,949	1,019	3,123	1,462	1,661	129.4	120.1	139.0
American Indian	481	240	241	996	33	15	18	68.6	62.5	74.7
Other	1,262	633	629	1,006	73	20	53	57.8	31.6	84.3
Unknown	189	99	90	1,100	19	9	10	100.5	90.9	111.1

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[1] - Records with sex not stated are included only in total columns.

Table 1.23
Live Births by Age and Education of Mother, Michigan Residents, 1980

AGE OF MOTHER	TOTAL	MOTHER'S EDUCATION						PERCENT WITH AT LEAST HIGH SCHOOL EDUCATION
		8TH GRADE OR LESS	1-3 YEARS HIGH SCHOOL	4 YEARS HIGH SCHOOL	1-3 YEARS COLLEGE	4 OR MORE YEARS COLLEGE	NOT STATED	
Under 20 Years	20,331	1,160	11,610	6,846	571	-	144	36.5
20-24 Years	51,218	835	9,731	29,620	9,216	1,500	316	78.8
25-29 Years	47,113	584	3,910	21,649	12,239	8,457	274	89.9
30-34 Years	21,024	430	1,396	7,711	4,899	6,456	132	90.7
35-39 Years	4,692	165	527	1,815	946	1,208	31	84.6
40 or More Years	762	67	129	319	123	119	5	73.6
Not Stated	22	-	8	5	6	2	1	59.1
Total	145,162	3,241	27,311	67,965	28,000	17,742	903	78.3
Median Age at Last Birthday	25	22	20	24	26	29	24	000

with 4 or more years of college.

Birth order varies with the mother's education as well as her age. Table 1.24 indicates that although the median age of mothers increases with educational level, the first birth ratio (number of first live births per 100 live births) also varies directly with educational attainment. The first birth ratio for mothers with 4 or more years of college was 46.7 compared to 36.8 for mothers with 8 or fewer years of education. Within each age group there are increases in the first birth ratio as educational level rises beyond the category of 9-11 years of education. For live births to women 20-24 years of age who had completed 4 or more years of college, 83.8 percent were to women with no previous live births, while only 25.1 percent of the live births to women of the same age who had not completed high school were first births. Mothers with 9 to 11 years of education had the lowest or second lowest first birth ratio within each age interval taken separately but the second highest total first birth ratio (43.6). This high overall ratio reflects the fact that a relatively large proportion of births to mothers with 9 to 11 years of education occurred before the age of 20.

CONGENITAL ANOMALIES

One or more congenital anomalies were reported for 1,155 of the 145,162 resident live births in 1980 (Table 1.25). This translates to a rate of 79.6 per 10,000 live births.

In 1979 the 9th Revision of the International Classification of Diseases was introduced for the coding of reported congenital anomalies. Care should be exercised in making comparisons between the reported incidences of specific types of anomalies for years during which different revisions of the ICD were used to classify anomalies. In addition the frequency of reporting of specific anomalies is affected by the reporting schedule. Many conditions may not be apparent at the time the birth certificate is completed and filed.

The most frequently reported categories were ICD 754, certain congenital musculoskeletal deformities (including clubfoot), and ICD 755, other congenital anomalies of limbs (excluding those classified to 754), with 163 and 304 anomalies, respectively. When these categories are combined with the category 756, other congenital musculoskeletal anomalies, the total number of musculoskeletal system anomalies reported increases to 513, or 38.3 percent of all anomalies reported. There were 141 infants born with cleft palate and/or cleft lip.

Table 1.24
First Birth Ratios[1] by Age and Education of Mother, Michigan Residents, 1980

AGE OF MOTHER	TOTAL	MOTHER'S EDUCATION				
		8TH GRADE OR LESS	1-3 YEARS HIGH SCHOOL	4 YEARS HIGH SCHOOL	1-3 YEARS COLLEGE	4 OR MORE YEARS COLLEGE
Under 20 Years	80.4	76.6	77.3	85.3	92.5	*
20-24 Years	49.3	22.9	25.3	51.0	66.2	83.8
25-29 Years	32.5	11.8	9.1	25.4	36.1	57.5
30-34 Years	19.2	7.7	6.4	14.0	18.2	29.6
35 or More Years	11.1	4.7	3.2	8.8	11.8	18.9
Total	42.4	36.8	43.6	40.8	43.1	46.7

1 - First live births per 100 live births. Births where the mother's age and/or education are not stated are included in the total but are not reallocated to specific age and education categories.

Table 1.25
Congenital Anomalies[1] Reported by Type of Anomaly, Michigan Residents, 1980

Type of Anomaly	ICD[3] Number	Number of Conditions[4]	Rate per 10,000 Live Births
Other congenital anomalies of limbs	755	304	20.9
Certain congenital musculoskeletal deformities	754	163	11.2
Cleft palate and cleft lip	749	141	9.7
Congenital anomalies of genital organs	752	131	9.0
Congenital anomalies of the integument	757	76	5.2
Chromosomal anomalies	758	61	4.2
Other and unspecified congenital anomalies	759	60	4.1
Other congenital anomalies of heart	746	57	3.9
Other congenital anomalies of nervous system	742	47	3.2
Other congenital musculoskeletal anomalies	756	46	3.2
Spina bifida	741	43	3.0
Congenital anomalies of ear, face and neck	744	36	2.5
Other congenital anomalies of digestive system	751	31	2.1
Anencephalus and similar anomalies	740	30	2.1
Other congenital anomalis of upper alimentary tract	750	29	2.0
Congenital anomalies of eye	743	26	1.8
Other congenital anomalies of circulatory system	747	25	1.7
Congenital anomalies of respiratory system	748	14	1.0
Bulbus cordis anomalies and anomalies of cardiac septal closure	745	12	0.8
Congenital anomalies of urinary system	753	9	0.6
At Least One Anomaly[2]		1,155	79.6

1 - Indicates anomalies apparent soon after a live birth.
2 - Does not equal the sum of anomalies specified because of multiple anomaly occurrences.
3 - Ninth Revision International Classification of Diseases, WHO.
4 - Includes three digit duplicates if fourth digit is different, permitting total counting of distinct conditions.

Congenital anomaly rates by age of mother and race of child are presented in Table 1.26. The highest rates were experienced by mothers 40 years or over (105.0 per 10,000 live births) and those under 20 years of age (91.0). The rate for the highest risk category was nearly 60 percent above the rate of the age group with the lowest rate (66.1 for women 35-39 years of age). Congenital anomaly rates for white infants and infants of other races showed similar patterns of variation by age of mother, although for mothers under 30 years the rates for other than white infants were somewhat higher than for white infants. The overall rate for white infants was 77.2 compared to 91.2 for infants of other races.

Figure 1.8 displays the rate of reported congenital anomalies for Michigan resident live births over the period 1960-1980. The rate has exhibited a cyclical pattern over this time period. The rate rose from 88.4 per ten thousand live births in 1960 to 120.6 in 1963. By 1970 the rate had returned to the level of 1960 (88.3). The rate then rose to 100.8 in 1973. Since 1973 the rate has declined by 21.0 percent. The rate of 79.6 for 1980 is the lowest of the period examined.

COMPLICATIONS

The numbers of deliveries with specific types of complications reported are shown in Table 1.27. These data represent entries in three boxes on the live birth certificate: complications of pregnancy, concurrent illnesses or conditions affecting this pregnancy, and complications of labor and/or delivery. It is important to note that these items are under-reported on the birth certificate. Some conditions or procedures, such as obstetrical operations, may be routinely performed by some physicians, and hence not be considered "complications". In addition to valid complications there are also inappropriate terms entered, such as "prematurity", "spontaneous delivery", or "home delivery". These inappropriate terms were omitted in the tabulations of complications shown in Tables 1.27 and 1.28. The total number of deliveries with entries in one or more of the three "complication" boxes was 39,255. Of these, 36,766 (93.7 percent) had one or more valid complications. This is a rate of 25.3 per 100 live births.

It should be noted that in some cases the code used to describe the complication is dependent on the box in which the entry is found, while in other cases the same code is given regardless of the box used. An example of the latter situation is chronic hypertension, which is shown in Table 1.27 under the heading "Concurrent illnesses or conditions affecting this pregnancy" regardless of the box in which it

Table 1.26
Live Births With Congenital Anomalies Reported and Congenital Anomaly Rates[1] by Age of Mother and Race of Child, Michigan Residents, 1980

AGE OF MOTHER	TOTAL		RACE OF CHILD					
			WHITE		ALL OTHER		NOT STATED	
	Number	Rate[2]	Number	Rate[2]	Number	Rate[2]	Number	Rate[2]
Under 15 Years............	4	*	-	*	4	*	-	*
15-19 Years...............	181	90.5	122	86.6	59	99.9	-	*
20-24 Years...............	411	80.2	329	77.9	82	92.1	-	*
25-29 Years...............	355	75.4	298	73.7	57	86.2	-	*
30-34 Years...............	165	78.5	140	78.7	25	78.3	-	*
35-39 Years...............	31	66.1	25	65.7	6	68.2	-	*
40 Years or Over..........	8	105.0	5	83.2	3	*	-	*
Total.....................	1,155	79.6	919	77.2	236	91.2	-	*
Median Age at Last Birthday..................	24	000	25	000	22	000	*	000

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1 - Number of live births with congenital anomalies reported per 10,000 live births.
2 - Rate denominator obtained from Table 1.6.

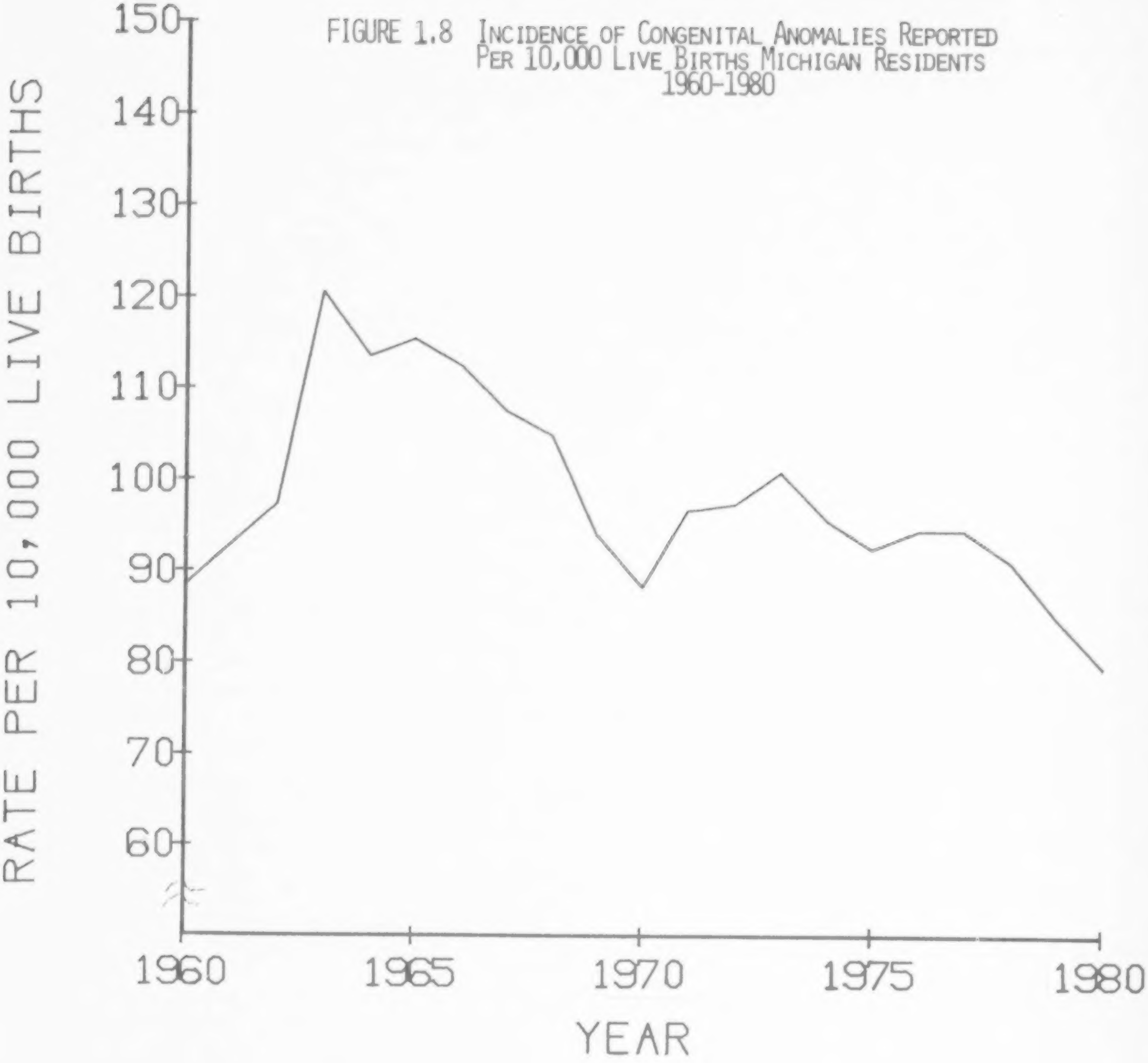


FIGURE 1.8 INCIDENCE OF CONGENITAL ANOMALIES REPORTED PER 10,000 LIVE BIRTHS MICHIGAN RESIDENTS 1960-1980

Table 1.27
Live Births With Specific Types of Complications Reported, Michigan Residents, 1980

Type of Complication	Number of Deliveries[1]	Rate per 10,000 Live Births[2]
Concurrent illnesses or conditions affecting this pregnancy	7,083	487.9
Chronic circulatory and genitourinary diseases in mother	1,714	118.1
Chronic rheumatic heart disease	52	3.6
Chronic hypertensive disease	1,035	71.3
Other chronic diseases and congenital anomalies of heart and circulatory system	170	11.7
Chronic diseases of genitourinary system	484	33.3
Other maternal conditions	5,579	384.3
Syphilis	13	0.9
Gonorrhea and other VD, excluding syphilis	81	5.6
Diabetes mellitus	844	58.1
Influenza	16	1.1
Rubella	4	0.3
Injury	33	2.3
Prior operations (excluding previous cesarean section)	172	11.8
Previous cesarean section	2,244	154.6
Narcotic or drug user	300	20.7
Obesity	268	18.5
Hepatitis	16	1.1
Anemia	188	13.0
All other maternal conditions	1,283	88.4
Unknown type of maternal condition	297	20.5
Toxemia of pregnancy	2,384	164.2
Hypertensive disease arising during pregnancy	48	3.3
Pre-eclampsia of pregnancy	1,691	116.5
Eclampsia of pregnancy	37	2.5
Hypermesis gravidarum	95	6.5
Toxemia superimposed on pre-existing hypertensive cardiovascular disease	64	4.4
Other and unspecified toxemia of pregnancy	67	42.5

Table 1.27
Live Births With Specific Types of Complications Reported, Michigan Residents, 1980
(Continued)

Type of Complication	Number of Deliveries[1]	Rate per 10,000 Live Births
Maternal ante-and intrapartum infection	575	39.6
Infections of genital tract	56	3.9
Pyelitis and pyelonephritis	48	3.3
Other infections of urinary tract	159	11.0
Infections of amniotic fluid	124	8.5
Other infections	207	14.3
Difficult labor with disproportion or abnormality of organs and tissues of the pelvis	4,464	307.5
Difficult labor with malposition of fetus	4,414	304.1
Breech presentation	2,912	200.6
Transverse presentation	239	16.5
Brow presentation	72	5.0
Face presentation	79	5.4
Compound or shoulder presentation	66	4.5
Other specified presentation	521	35.9
Unspecified presentation	564	38.9
Difficult labor with abnormality of forces of labor	979	67.4
Primary uterine inertia	296	20.4
Secondary uterine inertia	191	13.2
Prolonged second stage	130	9.0
Precipitate birth	267	18.4
Other and unspecified abnormality of forces of labor	104	7.2
Other and unspecified difficult labor	819	56.4
Laceration of pelvic organs	640	44.1
Conditions of placenta and fetal membranes	1,718	118.4
Placenta previa - partial	442	30.4
Placenta previa - complete	20	1.4
Premature separation of placenta - partial	814	56.1
Premature separation of placenta - complete	25	1.7
Placental insufficiency	56	3.9
Delivery complicated by retained placenta	348	24.0

Table 1.27
Live Births With Specific Types of Complications Reported, Michigan Residents, 1980
(Continued)

Type of Complication	Number of Deliveries[1]	Rate per 10,000 Live Births
Other and unspecified abnormalities of placenta and fetal membranes	79	5.4
Conditions of umbilical cord	2,901	199.8
Other complications of pregnancy and child birth	10,630	732.3
Incompetent cervix	255	17.6
Premature rupture of membranes	3,535	243.5
Hydramnios	135	9.3
Ectopic pregnancy	2	0.1
Abortion - any type	7	0.5
Destructive operation on live fetus to facilitate birth	11	0.8
Multiple pregnancy	1,228	84.6
Hemorrhage or threatened abortion	645	44.4
RH incompatibility	558	38.4
Anemia of pregnancy	195	13.4
All other complications of pregnancy and childbirth	4,693	323.3
Unknown type of complication of pregnancy and childbirth	310	21.4
Obstetrical operations	17,320	1,193.1
Antepartum obstetrical procedures	53	3.7
Operations inducing labor or assisting delivery	2,387	164.4
Caesarean section	14,634	1,008.1
Operations after delivery or abortion	1,671	115.1
At least one complication	36,766	2,532.8

1 - Sum of subcategories may not equal total for category due to the occurrences of multiple complications.

was entered on the birth certificate. Thus, there were 7,083 deliveries (487.9 per 10,000 live births) with one or more entries which were coded to the various categories under the heading "Concurrent illnesses or conditions affecting this pregnancy", while the number of births with one or more entries in the box bearing this title on the birth certificate was only 5,429 (374.0 per 10,000 live births). This latter figure is comparable to the rate of 308.2 reported for 1978, as prior to 1979 specific types of complications were not coded and tabulated. Rates presented for "Concurrent illnesses or conditions affecting this pregnancy", "Complications of pregnancy", and "Complications of labor and/or delivery" were derived from the numbers of records with entries in these boxes.

Among the most commonly reported maternal conditions not directly related to the pregnancy were chronic hypertensive disease, diabetes mellitus, and previous Cesarean sections, which were reported 1,035, 844, and 2,244 times, respectively, in 1980. Toxemia of pregnancy was reported for 2,384 deliveries (164.2 per 10,000). The most common form was pre-eclampsia of pregnancy, which was reported 116.5 times per 10,000 deliveries. Various forms of difficult labor were reported in approximately 7 percent of all deliveries. There were 1,718 deliveries complicated by conditions of the placenta and fetal membranes, and 2,901 by conditions of the umbilical cord. Premature rupture of membranes was reported for 3,535 deliveries. There were 14,634 deliveries reported as Cesarean sections. It should be noted that the type of delivery is not a question on the birth certificate, so that the rate of 1008.1 Cesarean sections per 10,000 deliveries undoubtedly understates the true rate. There were 17,320 deliveries with entries coded to the category of obstetrical operations in 1980, compared to 14,335 in 1979. Most of this difference is attributable to the increased reporting of two common procedures - episiotomy and postpartum repair of laceration of cervix or uterus. In 1979 112 deliveries were reported as involving episiotomy, compared to 1,442 in 1980. This increase is responsible for the increase in the figures for the category which includes episiotomy, operations inducing labor or assisting delivery, which went from 1,101 in 1979 to 2,387 in 1980. A similar and related increase was noted in the reporting of postpartum repair of laceration of cervix or uterus (from 88 in 1979 to 1,501 in 1980) and the category in which it is included, operations after delivery or abortion (from 220 in 1979 to 1,671 in 1980).

The distribution by age of mother and race of infant for deliveries with complications reported is shown in Table 1.28. Mothers less than 15 years of age and older mothers were more likely to experience complications. The lowest rate was for mothers 20-24 years of age (24.6 complications per 100 live births). The rate increased to 34.4 for

Table 1.28
Live Births with Complications Reported and Complication Rates[1] by Age of Mother and Race of Child, Michigan Residents, 1980

AGE OF MOTHER	TOTAL		RACE OF CHILD					
			WHITE		ALL OTHER		NOT STATED	
	Number	Rate[2]	Number	Rate[2]	Number	Rate[2]	Number	Rate[2]
Under 15 Years............	96	29.0	29	26.9	67	30.0	-	*
15-19 Years..............	5,055	25.3	3,369	23.9	1,679	28.4	7	50.0
20-24 Years..............	12,583	24.6	10,025	23.7	2,551	28.7	7	9.7
25-29 Years..............	11,808	25.1	9,793	24.2	2,012	30.4	3	*
30-34 Years..............	5,615	26.7	4,581	25.7	1,033	32.4	1	*
35-39 Years..............	1,342	28.6	1,041	27.3	298	33.9	3	*
40 Years or Over..........	262	34.4	198	32.9	64	39.8	-	*
Unknown	5	22.7	5	23.8	-	*	-	*
Total	36,766	25.3	29,041	24.4	7,704	29.8	21	11.1
Median Age at Last Birthday................	25	000	25	000	24	000	21	000

1 - Number of live births with complications reported per 100 live births.

2 - Rate denominator obtained from Table 1.6.

mothers 40 years or over. The median age of mothers with complications reported was 25 years, the same as for all live births. A similar pattern of variation by age of mother was observed for white and other than white infants. The rate for other than white infants was higher than for white infants in all age groups. Overall the rate for other than white infants was about 22 percent higher (29.8 compared to 24.4).

PLACE OF OCCURRENCE

Of some confusion to persons not familiar with vital records data is the difference between occurrence and residence figures. Information on events to residents of Michigan that occur throughout the country and, in some instances, outside its boundaries is collected in order to obtain the full scope of activity for the state population. In 1980 2,061 Michigan resident live births occurred outside the state. Information on these events is forwarded to the state of Michigan for statistical purposes only. While only 1.4 percent of the total for the state is involved, statistics for the counties on Michigan's southern and northwestern borders would be strongly affected were this information not available.

Table 1.29 shows the four major geographic areas where Michigan resident live births occur outside the state. These four border areas comprise 92.4 percent of all resident live births that occurred out of state. Live births to Michigan residents occurred in 39 of the 50 states in 1980 and in the District of Columbia.

The number of nonresident live births that occurred in Michigan in 1980 was 571. Information about those events was shared with the appropriate states by the State of Michigan under specific confidentiality guidelines so they might have a complete statistical file on their residents. The border areas comprised 72.9 percent of these events, as shown in Table 1.29. There were live births in Michigan to residents of 35 states and at least six foreign countries.

PLACE OF BIRTH

In 1980 99.3 percent of the 144,077 infants born in Michigan were delivered in hospitals. There were 645 infants born at home, and 175 other non-hospital deliveries (Table 1.30). While the percentage of infants not born in hospitals is still very small, the number of home deliveries and other out-of-hospital births has increased in recent years. Between 1973 and 1980 the number of infants born at home increased by 129 percent. The proportion of all live-born infants who were delivered at home increased from 0.20

Table 1.29
Michigan Resident Live Births Occurring Outside of Michigan by Place of Occurrence, and Live Births Occurring in Michigan to Non-Michigan Residents by Place of Residence, 1980

GEOGRAPHIC AREA	LIVE BIRTHS TO RESIDENTS OCCURRING OUTSIDE MICHIGAN		LIVE BIRTHS TO NONRESIDENTS OCCURRING IN MICHIGAN	
	Number	Percent	Number	Percent
Total.............	2,061[1]	100.0	571	100.0
Indiana...........	609	29.5	137	24.0
Ohio..............	743	36.1	78	13.7
Wisconsin.........	457[1]	22.2	190	33.3
Canada............	96	4.7	11	1.9
Other Areas.......	156	7.6	155	27.1

1 - Includes 405 live births reported too late for inclusion in the statistical file.

Table 1.30
Live Births by Place of Delivery, Michigan Occurrences, 1973-1980

Year	Total	Place of Delivery					
		Hospital		Home		Other and Unknown	
		Number	Percent	Number	Percent	Number	Percent
1973	140,359	139,983	99.73	282	0.20	94	0.07
1974	136,418	136,049	99.73	282	0.21	87	0.06
1975	132,777	132,354	99.68	313	0.24	110	0.08
1976	130,253	129,714	99.59	375	0.29	164	0.13
1977	137,140	136,503	99.54	489	0.36	148	0.11
1978	137,896	137,119	99.44	573	0.42	204	0.15
1979	143,240	142,437	99.44	619	0.43	184	0.13
1980	144,077	143,257	99.43	645	0.45	175	0.12

percent in 1973 to 0.45 percent in 1980 (125 percent increase).

ATTENDANT AT BIRTH

Data in Table 1.31 reveal that 99.5 percent of the live births which occurred in Michigan were attended by a physician, either an M.D. or D.O. There were 320 live births attended by the mother's husband, while nurses delivered 125 infants and midwives and nurse-midwives delivered 72 babies. During 1980 there were 73 infants born to unattended women.

Of the 645 infants born in the mother's home 21.2 percent were attended by a physician, while an additional 43.3 percent were attended by the husband.

Table 1.31
Live Births by Place of Delivery and Type of Attendant, Michigan Occurrences, 1980

Attendant	Place of Delivery							
	Total		Hospital		Home		Other and Unknown	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Total	144,077	100.0	143,257	100.0	645	100.0	175	100.0
Physician, M.D.	122,407	85.0	122,236	85.3	111	17.2	60	34.3
Physician, D.O.	20,911	14.5	20,876	14.6	26	4.0	9	5.1
Husband	320	0.2	4	0.0	279	43.3	37	21.1
Nurse	125	0.1	114	0.1	6	0.9	5	2.9
Midwife	49	0.0	1	0.0	41	6.4	7	4.0
Physician's Asst.	6	0.0	6	0.0	-	-	-	-
Nurse-Midwife[1]	23	0.0	8	0.0	7	1.1	8	4.6
Other	158	0.1	10	0.0	109	16.9	39	22.3
Unattended	73	0.1	2	0.0	61	9.5	10	5.7
Unknown	5	0.0	-	-	5	0.8	-	-

1 - May or may not be certified by the American College of Nurse Midwives.

FETAL DEATHS

There were 1,325 fetal deaths reported in 1900. The number of reported fetal deaths increased from 1900 through 1916 and by 1916 there were 3,689 reported fetal deaths (Figure 1.9). The numbers of such deaths were relatively stable from 1916 through 1930, with the peak year for the period being 1927. This year marked the highest frequency of occurrence in this century with 3,834 fetal deaths. Over the period 1930 through 1939, fetal deaths declined to 2,572. Fetal deaths then increased through 1943, decreased in 1944 and 1945, and increased again to 3,422 in 1947. Fetal deaths numbered between 3,000 and 3,250 in the period 1948 to 1958. In the 1960's and 70's the number of reported fetal deaths declined sharply. By 1976, the number fell to 1,264 (revised), the lowest number reported in this century. After a slight increase in 1977 (1,284, revised), new lows were recorded in each of the following three years. The number of Michigan resident fetal deaths was 1,176 in 1980.

Part of the decline in fetal deaths from 1977 to 1978 was due to the introduction of a new reporting form on October 1, 1978. The principal responsibility for reporting a fetal death was shifted from the funeral director to the hospital or other institution where the delivery occurred. Michigan resident fetal deaths numbered 963 in the first nine months of 1977 and 960 in the same period during 1978. There was a significant decline between 1977 and 1978 in the number of fetal deaths reported for the transitional month of October (116 in 1977 and 69 in 1978). In the last two months of 1977 there were 205 fetal deaths reported compared to 189 in the last two months of 1978. This problem of underreporting was addressed, and the fetal death files for 1979 and 1980 are believed to be complete.

The fetal death ratio for Michigan has declined through most of the twentieth century (Figure 1.10 and Table 4.2). The ratio rose from 30.3 in 1900 to 43.5 in 1905. Through the teens and early twenties, this ratio fluctuated between 38 and 42, never reaching the peak ratio observed in 1905. In 1922, Michigan's fetal death ratio was 42.0. The year 1922 marks a turning point, as fetal death ratios have generally declined since this year. The low ratio of 1900 was first succeeded by a new low ratio in 1936 (29.7). Over the next 43 years, new lows have been established repeatedly, as the fetal death ratio continues to decline. The ratio in 1980 was 8.1, the lowest observed in this century.

National fetal death data are presented in Figure 1.10 and Table 1.32. Michigan's fetal death ratios have generally been below national ratios. In fact, the United States ratio has been below that for Michigan in only nine of the 56 years for which national data are available. The

FIGURE 1.9 FETAL DEATHS, MICHIGAN RESIDENTS, 1900-1980

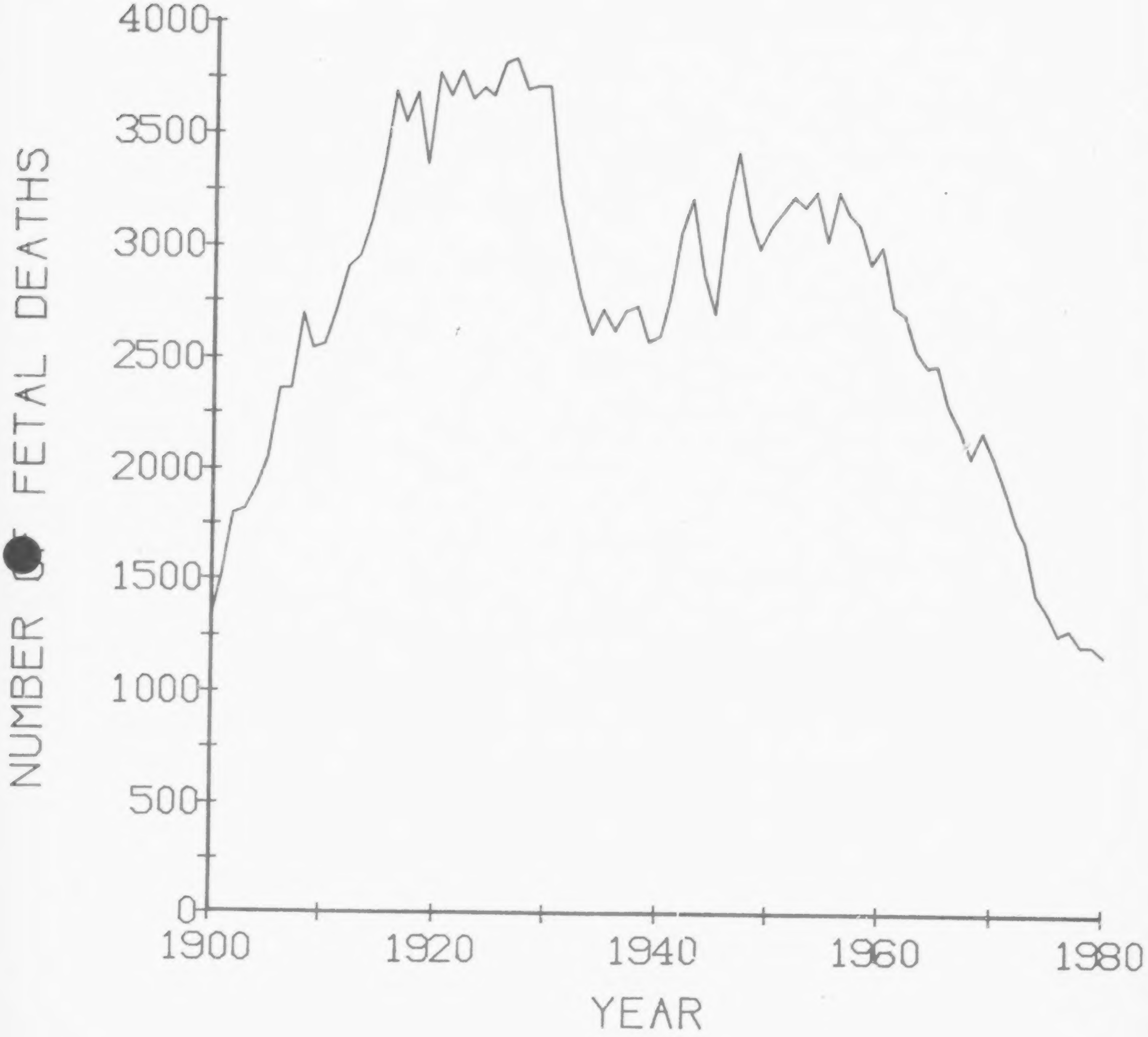
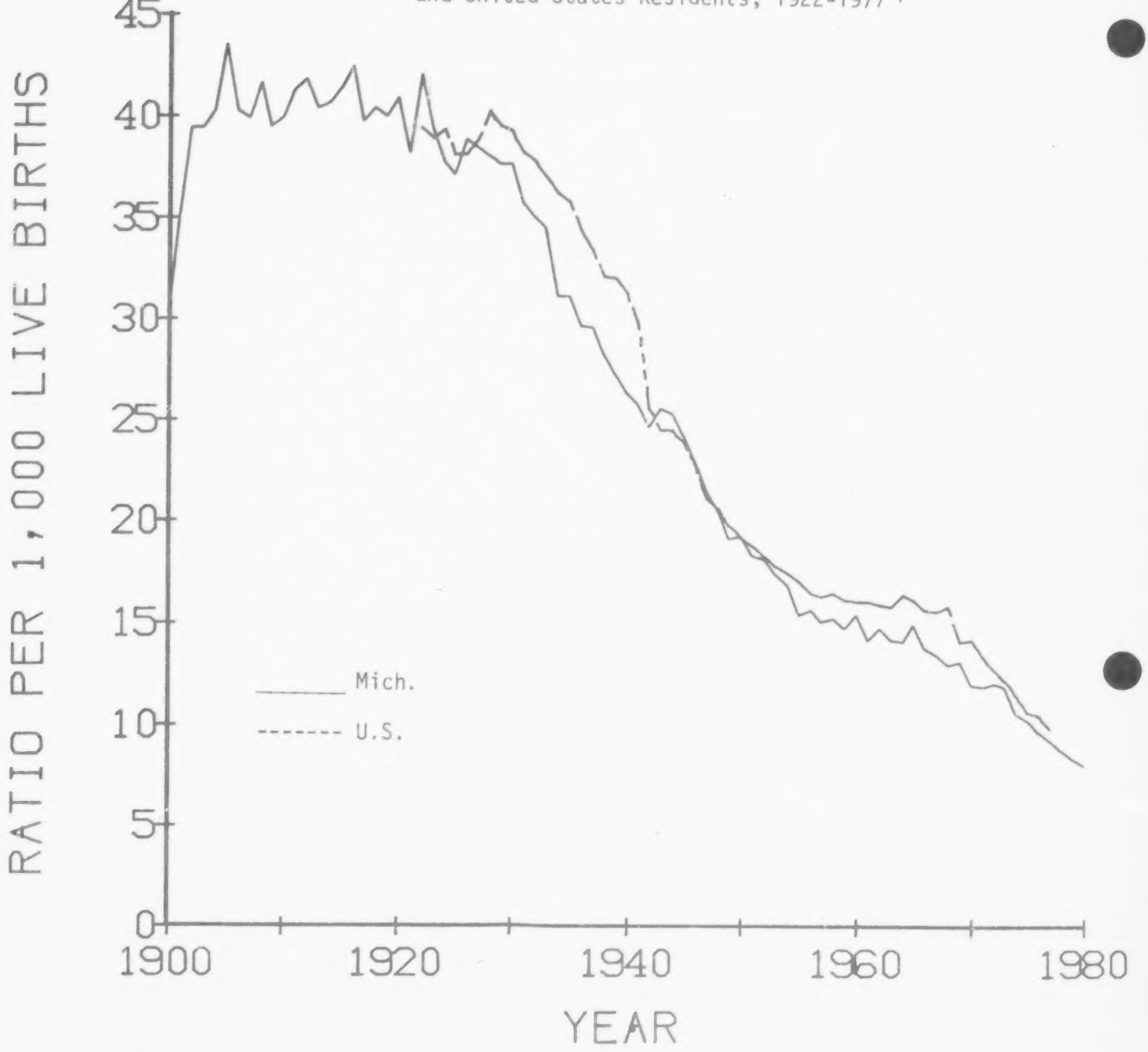


FIGURE 1.10 - Fetal Death Ratios, Michigan Residents, 1900-1980, and United States Residents, 1922-1977[1]



[1] U.S. ratios prior to 1933 are for registration areas only. U.S. ratios are based on three different definitions of fetal death:

1) prior to 1942 - all reported fetal deaths regardless of period of gestation
2) 1942-1968 - fetal deaths with gestational age 20 weeks or more or not stated
3) 1969-current - fetal deaths of stated or presumed period of gestation of 20 or more weeks

TABLE 1.32 - Fetal Deaths and Fetal Death Ratios, Michigan and United States Residents, 1900-1980

UNITED STATES		YEAR	MICHIGAN	
FETAL DEATHS	FETAL DEATH RATIOS		FETAL DEATHS	FETAL DEATH RATIOS
---	---	1900	1,325	30.3
---	---	1910	2,559	39.9
70,010[1]	39.4	1920	3,770	40.9
86,466	39.2	1930	3,714	37.6
73,802	31.3	1940	2,602	26.3
68,261	19.2	1950	3,095	19.3
68,480	16.1	1960	3,008	15.4
52,961	14.2	1970	2,060	12.0
47,813	13.4	1971	1,923	11.9
41,380	12.7	1972	1,770	12.1
38,309	12.2	1973	1,682	11.9
36,281	11.5	1974	1,438[2]	10.5[2]
33,796	10.7	1975	1,356[2]	10.1[2]
33,111	10.5	1976	1,264[2]	9.6[2]
33,053	9.9	1977	1,284[2]	9.3
---	---	1978	1,218[2]	8.8
---	---	1979	1,216	8.4
---	---	1980	1,176	8.1

1 - Data for 1922.

2 - Revised.

last time the United States ratio was below the Michigan ratio was in 1950. In 1977, the Michigan ratio was 6.1 percent below the national ratio of 9.9. It should be noted that fetal deaths in Michigan are comprised of stillbirths that have passed through 20 weeks gestation. This definition is different from that of some states. (Since October 1 of 1978 stillbirths of fetuses of at least 20 completed weeks of gestation or weighing 400 grams or more are required to be reported as fetal deaths in Michigan. The impact of this change in definition on the number of fetal deaths reported has been minimal.)

CAUSES OF FETAL DEATH

A classification of fetal deaths by underlying cause of death is contained in Table 1.33. This classification is based on the 9th Revision of the International Classification of Diseases which was introduced in 1979. Since major changes were made between the 8th and 9th revisions of the ICD in the section used for classifying causes of fetal death, comparisons between cause-specific ratios for 1979 and later years and those for years prior to 1979 require detailed study. Also, since a relatively large number of deaths are allocated to unspecified causes, caution should be exercised in attempting to draw specific inferences regarding causes of death.

In 1980, 312 of the total 1,176 deaths were assigned to the category of "Other and ill-defined conditions originating in the perinatal period" and of these 312 fetal deaths 261 were in the "unspecified" category. Half (50.9 percent) of the fetal deaths for which a cause was stated were attributed to complications of placenta, cord, and membranes (ICD 762). This is a group of maternal conditions which includes placenta previa, premature separation of the placenta, placental hemorrhage, and compression of the umbilical cord. Second in frequency was the category maternal complications of pregnancy (ICD 761), which was listed as the cause of 122 fetal deaths. This includes such complications as premature rupture of membranes, multiple pregnancy, and incompetent cervix. There were an additional 61 deaths caused by maternal conditions which may be unrelated to the pregnancy, of which 34 were attributed to maternal hypertensive disorders. Of the 72 fetal deaths caused by congenital anomalies, 25 were attributed to anencephalus or similar anomalies.

AGE OF MOTHER AND RACE OF FETUS

It appears that the younger, the older, and other than white mothers have a greater risk of delivering a stillborn fetus. The rates of fetal loss for mothers under 15 years

Table 1.33
Fetal Deaths and Fetal Death Ratios by Underlying Cause of Death, Michigan Residents, 1980

ICD No.[1]	CAUSE OF DEATH	FREQUENCY	RATIO[2]
740	Anencephalus and similar anomalies	25	17.2
742	Other congenital anomalies of nervous system	12	8.3
744	Congenital anomalies of ear, face and neck	1	0.7
746	Other congenital anomalies of heart	3	2.1
747	Other congenital anomalies of circulatory system	3	2.1
751	Other congenital anomalies of digestive system	2	1.4
753	Congenital anomalies of urinary system	1	0.7
756	Other congenital musculoskeletal anomalies	1	0.7
758	Chromosomal anomalies	5	3.4
759	Other and unspecified congenital anomalies	19	13.1
740-759	All congenital anomalies combined	72	49.6
760	Fetus or newborn affected by maternal conditions which may be unrelated to present pregnancy	61	42.0
761	Fetus or newborn affected by maternal complications of pregnancy	122	84.0
762	Fetus or newborn affected by complications of placenta, cord and membranes	466	321.0
763	Fetus or newborn affected by other complications of labor and delivery	6	4.1
764	Slow fetal growth and fetal malnutrition	2	1.4
[illegible]65	Disorders relating to short gestation and unspecified low birthweight	59	40.6
768	Intrauterine hypoxia and birth asphyxia	42	28.9
769	Respiratory distress syndrome	1	0.7
770	Other respiratory conditions of fetus and newborn	7	4.8
771	Infections specific to the perinatal period	3	2.1
772	Fetal and neonatal hemorrhage	2	1.4
773	Hemolytic disease of fetus or newborn, due to isoimmunization	5	3.4
775	Endocrine and metabolic disturbances specific to the fetus and newborn	12	8.3
778	Conditions involving the integument and temperature regulation of fetus and newborn	4	2.8
779	Other and ill-defined conditions originating in the perinatal period	312	214.9
740-779	All Causes	1,176	810.1

1 - Ninth Revision of the International Classification of Diseases.
2 - Ratios per 100,000 resident live births.

of age, 40 years of age or greater, and for the other than white fetus are higher than those for other groups (Table 1.34).

The overall fetal death rate per 1,000 total births (live births plus fetal deaths) was 8.0 in 1980. An association of maternal age with fetal death rates is apparent from Table 1.34. The 20-24 year age group displayed the lowest rate. Progressively older and younger age groups displayed increasingly higher rates. The rate for women 15-19 (9.2) was 27.8 percent higher than the rate for women 20-24 years of age (7.2). The highest rate was experienced by women under 15 years of age, for whom the rate (23.6) was over three times the rate for women in the lowest risk age group. The rate for women 40 years of age or over was more than double that for women 20-24 years of age. The median age of women whose pregnancy resulted in a fetal death was 25 years, the same as for women having live births.

In 1980 the fetal death rate for white fetuses was 6.9 while the fetal death rate for other races was 78.3 percent higher at 12.3. Rates for other than white fetuses were higher than for white fetuses in all age intervals with sufficient events to calculate rates. The differentials ranged from 62.3 percent for women aged 15 through 19 to 111.1 percent for women aged 25-29.

INTERPREGNANCY TIME PERIOD FOR FETAL DEATHS

For those women whose pregnancy terminated with a fetal death in 1980, a total of 484 reported the date of the termination of a previous pregnancy. The median interpregnancy time period was 2 years and 5 months, compared to 2 years and 7 months for women having live births in 1980. Table 1.35 presents a comparison of fetal death rates by interpregnancy time span for births in 1980 to women who reported the date of a prior termination. The minimum risk was associated with spacings of between 2 and 3 years (4.3 fetal deaths per 1,000 total births). The risk increased progressively as the length of spacings decreased or increased. The fetal death rate for births with spacings of five or more years was 60.5 percent above the rate of the minimum risk category. The greatest risk of fetal death was associated with spacings of less than one year. For births in this category the fetal death rate (17.2) was four times the rate for the minimum risk category. When comparing interpregnancy time spans for live births and fetal deaths one should be aware that the shorter gestational period associated with fetal deaths results in a correspondingly shorter interpregnancy time span.

Table 1.36 indicates that, as with live births (Table

Table 1.34

Fetal Deaths, Live Births, Total Births, and Fetal Death Rates by Age of Mother and Race of Fetus, Michigan Residents, 1980

AGE OF MOTHER AND RACE OF FETUS	FETAL DEATHS	LIVE BIRTHS	TOTAL BIRTHS	RATE PER 1,000 TOTAL BIRTHS
Under 15 Years........	8	331	339	23.6
White..............	5	108	113	44.2
Other Than White...	3	223	226	*
Not Stated.........	-	-	-	000
15-19 Years..........	186	20,000	20,186	9.2
White..............	109	14,082	14,191	7.7
Other Than White...	75	5,904	5,979	12.5
Not Stated........	2	14	16	000
20-24 Years..........	374	51,218	51,592	7.2
White..............	273	42,244	42,517	6.4
Other Than White...	96	8,902	8,998	10.7
Not Stated.........	5	72	77	000
25-29 Years..........	350	47,113	47,463	7.4
White..............	257	40,447	40,704	6.3
Other Than White...	89	6,609	6,698	13.3
Not Stated.........	4	57	61	000
30-39 Years..........	224	25,716	25,940	8.6
White..............	169	21,600	21,769	7.8
Other Than White...	54	4,071	4,125	13.1
Not Stated.........	1	45	46	000
40 or Over...........	12	762	774	15.5
White..............	10	601	611	16.4
Other Than White...	2	161	163	*
Not Stated.........	-	-	-	000
Not Stated...........	22	22	44	000
White..............	10	21	31	000
Other Than White...	4	-	4	000
Not Stated.........	8	1	9	000
Total................	1,176	145,162	146,338	8.0
White..............	833	119,103	119,936	6.9
Other Than White...	323	25,870	26,193	12.3
Not Stated.........	20	189	209	000

Table 1.35 Fetal Deaths, Live Births, Total Births, and Fetal Death Rates by Interpregnancy Time Span, Michigan Residents Reporting Prior Pregnancy Terminations[1], 1980

Time Span in Years	Fetal Deaths	Live Births	Total Births	Rate per 1,000 Total Births
Less than one	55	3,148	3,203	17.2
1< 2	145	27,756	27,901	5.2
2 < 3	91	21,079	21,170	4.3
3< 5	89	19,498	19,587	4.5
5 or More	104	14,937	15,041	6.9
Total	484	86,418	86,902	5.6

1 - Terminations with time spans of zero years (i.e., second or later births in plural deliveries) and terminations with unknown time spans are excluded.

Table 1.36 - Fetal Deaths[1] to Women Reporting Prior Pregnancy Terminations[2] by Time Span Between Last and Current Termination and by Whether Prior Termination Resulted in a Live Birth or a Fetal Death[3], Michigan Residents, 1980

TIME SPAN IN YEARS	TOTAL		PRIOR FETAL DEATH[3]		PRIOR LIVE BIRTH	
	NUMBER	PERCENT	NUMBER	PERCENT	NUMBER	PERCENT
TOTAL................	484	100.0	153	100.0	331	100.0
Less Than One........	55	11.4	34	22.2	21	6.3
1 < 2................	145	30.0	62	40.5	83	25.1
2 < 3................	91	18.8	25	16.3	66	19.9
3 < 5................	89	18.4	22	14.4	67	20.2
5 or More............	104	21.5	10	6.5	94	28.4
Median Time Span.....	2 yrs. 5 mos.	000	1 yr. 8 mos.	000	2 yrs. 11 mos.	000

1 - Deaths of fetuses of twenty or more weeks gestation or weighing 400 grams or more.

2 - Terminations with time spans of zero years (i.e., second or later births in plural deliveries) and terminations with unknown time spans are excluded.

3 - Fetal deaths of any gestational age.

1.13), the outcome of the immediate prior termination has a strong influence on the interval between pregnancies. For 153 women whose prior termination was a fetal death, the median interpregnancy time span was 1 year and 8 months. For 331 women whose prior termination was a live birth, the median interpregnancy time span was 2 years and 11 months.

As for live births, the median interpregnancy time span for fetal deaths has declined since 1977. In 1977 the median was 2 years and 11 months for fetal deaths. By 1980 the median had declined 17.1 percent, to 2 years and 5 months. For live births the decline was 6.1 percent, from 2 years and 9 months in 1977 to 2 years and 7 months in 1980.

PRENATAL CARE - FETAL DEATHS

Of the 1,176 fetal deaths reported for 1980, 53 or 4.5 percent of the reports indicated that the mother had no prenatal visits. The comparable percent for live births was 0.6. The percent of mothers with fewer than ten prenatal visits was 53.4 for fetal deaths and 25.6 for live births (Table 1.17 and Table 1.37).

The number of prenatal visits varied by race (Table 1.37). Mothers of white fetuses had a mean of 8.4 visits whereas those of other than white fetuses reported a mean of 6.4 visits. Note, however, that the number of prenatal visits was not stated on 12.7 percent of the reports for white fetuses and 28.8 percent of the reports for other than white fetuses.

The fetal death rate varied with the number of prenatal visits (Table 1.38). The rate was 53.5 for mothers with no care, 35.2 for mothers with 1-4 visits, and 12.4 for those with 5-9 visits. The fetal death rate was lowest for mothers with 10-14 visits (3.1), and increased to 3.7 and 8.6 for mothers with 15-19 and 20 or more visits, respectively.

Fetal death rates for white and other than white fetuses exhibited similar patterns of association with the number of prenatal visits (Table 1.38). The overall fetal death rate for other than white fetuses was 78.3 percent higher than for white fetuses. However, when fetal death rates for white and other than white fetuses are compared within prenatal care categories the differentials are reduced. The largest relative differential was in the category of women who received no prenatal care, where the rate for other than white fetuses exceeded by 24.4 percent that for white fetuses. The death rates were similar for white and other than white fetuses born to women who received between 15 and 19 prenatal visits, while the fetal death rates for white fetuses were higher than those for

Table 1.37
Fetal Deaths by Number of Prenatal Visits and Race, Michigan Residents, 1980

PRENATAL VISITS	TOTAL		RACE					
			WHITE		ALL OTHER		NOT STATED	
	NUMBER	PERCENT	NUMBER	PERCENT	NUMBER	PERCENT	NUMBER	PERCENT
None....................	53	4.5	25	3.0	28	8.7	-	-
1-4.....................	185	15.7	113	13.6	69	21.4	3	15.0
5-9.....................	390	33.2	306	36.7	79	24.5	5	25.0
10-14...................	270	23.0	226	27.1	41	12.7	3	15.0
15-19...................	49	4.2	40	4.8	8	2.5	1	5.0
20 or Over..............	22	1.9	17	2.0	5	1.5	-	-
Not Stated..............	207	17.6	106	12.7	93	28.8	8	40.0
Total...................	1,176	100.0	833	100.0	323	100.0	20	100.0
Median Number of Visits.	7	000	8	000	5	000	*	000
Mean Number of Visits...	7.9	000	8.4	000	6.4	000	*	000

Table 1.38
Fetal Deaths, Total Births and Fetal Death Rates by Number of Prenatal Visits and Race[1] Michigan Residents, 1980

Number of Visits	ALL BIRTHS			WHITE BIRTHS			ALL OTHER BIRTHS		
	FETAL DEATHS	TOTAL BIRTHS	FETAL DEATH RATES	FETAL DEATHS	TOTAL BIRTHS	FETAL DEATH RATES	FETAL DEATHS	TOTAL BIRTHS	FETAL DEATH RATES
TOTAL	1,176	146,338	8.0	833	119,936	6.9	323	26,193	12.3
None	53	991	53.5	25	521	48.0	28	469	59.7
1-4	185	5,259	35.2	113	3,189	35.4	69	2,064	33.4
5-9	390	31,510	12.4	306	24,798	12.3	79	6,683	11.8
10-14	270	86,321	3.1	226	75,011	3.0	41	11,274	3.6
15-19	49	13,392	3.7	40	11,253	3.6	8	2,134	3.7
20 or Over	22	2,563	8.6	17	1,926	8.8	5	636	7.9
Not Stated	207	6,302	000	106	3,238	000	93	2,933	000

1 - Race not stated included in total columns only.

other than white fetuses for fetuses born to women who received from 1-4, 5-9, or 20 or more prenatal visits.

Caution should be exercised in interpreting the above fetal death rates and proportions. Incomplete reporting of the number of visits occurred on 17.6 percent of the fetal death reports compared with 4.2 percent of the live birth records. It should also be kept in mind that fetal deaths are much more likely to occur preterm and this affects the possible number of prenatal visits (Table 1.39). In 1980 26.2 percent of the reported fetal deaths occurred before 28 weeks of gestational age, and 50.7 percent occurred before 36 weeks. Incomplete reporting of gestational age occurred on an additional 12.1 percent of the fetal death reports.

The month of pregnancy that prenatal care began was most frequently the second month (Table 1.40). Two thirds (66.3 percent) of all fetal deaths were to women who reported receiving care prior to the fourth month of pregnancy, and 78.1 percent were to women receiving care prior to the sixth month. From 1970 through 1973 there were increases in the percentage of fetal deaths in which the mother received care prior to the fourth and sixth month. These percentages declined between 1973 and 1976, and increased during the past four years (Figure 1.11).

FETAL WEIGHT

Among live births, the percent of infants weighing 2,500 grams or less at birth was 6.9. The comparable percent among fetal deaths was 69.2. The distribution of fetal weight by plurality for fetal deaths is presented in Table 1.41. Note that twin and triplet deliveries are not sets, but are total occurrences and that any given set may have included live births. The percent of single delivery fetal deaths under 2,501 grams was 67.2. The comparable percent for twin deliveries was 88.7.

The fetal weight distribution is strongly associated with gestational age (Table 1.42). The median fetal weight for all fetal deaths was 1,360 grams compared to a median birthweight of 3,380 grams for live births. For deaths of fetuses of 32-35 weeks age, the median was 1,445 grams, while for the normal gestational age range of 36-39 weeks the median weight was only 2,409 grams.

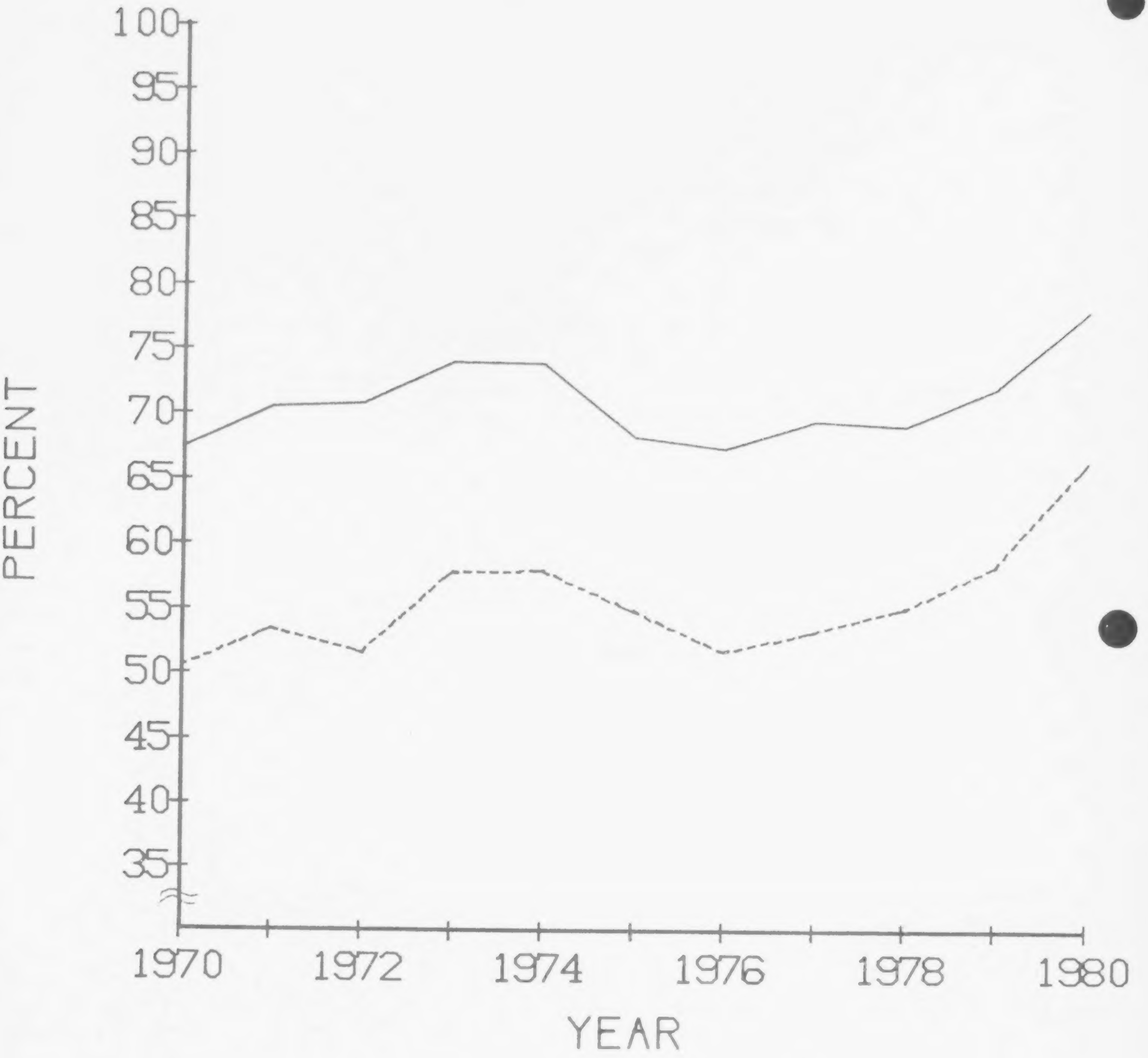
Table 1.39
Fetal Deaths by Gestational Age and Number of Prenatal Visits, Michigan Residents, 1980

Gestational Age in Completed Weeks	Number	Percent	Median Number of Visits
Under 20	34	2.9	2
20-23	139	11.8	4
24-27	135	11.5	5
28-31	128	10.9	6
32-35	160	13.6	7
36-39	234	19.9	10
40-43	177	15.1	12
44 or more	27	2.3	12
Unknown	142	12.1	3
Total	1,176	100.0	7

TABLE 1.40 - Fetal Deaths by Month Prenatal Care Began and by Number of Prenatal Visits, Michigan Residents, 1980

MONTH OF PREGNANCY PRENATAL CARE BEGAN	NUMBER OF VISITS							
	TOTAL	NONE	<5	5-9	10-14	15-19	20 AND OVER	NOT STATED
TOTAL..............	1,176	53	185	390	270	49	22	207
No Care	53	53	-	-	-	-	-	-
First Month........	138	-	9	59	41	8	13	8
Second Month.......	377	-	51	165	116	28	4	13
Third Month........	265	-	58	92	86	10	5	14
Fourth Month.......	101	-	31	44	19	2	-	5
Fifth Month........	37	-	12	20	4	-	-	1
Sixth Month........	21	-	9	8	2	1	-	1
Seventh Month......	9	-	7	2	-	-	-	-
Eighth Month.......	2	-	2	-	-	-	-	-
Ninth Month........	1	-	1	-	-	-	-	-
Unknown............	172	-	5	-	2	-		165

FIGURE 1.11 - PERCENT OF WOMEN HAVING FETAL DEATHS WHO RECEIVED CARE PRIOR TO THE 4TH MONTH AND THE 6TH MONTH OF PREGNANCY, MICHIGAN RESIDENTS, 1970-1980



_______Prior to 6th Month

-------Prior to 4th Month

TABLE 1.41 - Fetal Deaths by Fetal Weight and Plurality, Michigan Residents, 1980

WEIGHT	FETAL DEATHS	CUM. %	SINGLE DELIVERY	TWIN DELIVERY	TRIPLET DELIVERY
500 Grams or Less.......	203	17.3	165	38	-
501-1,000 Grams.........	257	39.1	233	24	-
1,001-1,500 Grams.......	130	50.2	117	11	2
1,501-2,000 Grams.......	113	59.8	103	10	-
2,001-2,500 Grams.......	111	69.2	100	11	-
2,501-3,000 Grams.......	96	77.4	92	4	-
3,001-3,500 Grams.......	106	86.4	105	1	-
3,501-4,000 Grams.......	63	91.8	63	-	-
4,001-4,500 Grams.......	19	93.4	19	-	-
4,501-5,000 Grams.......	5	93.8	5	-	-
5,001 Grams and over....	9	94.6	9	-	-
Not Stated.............	64	100.0	57	7	-
Total..................	1,176	100.0	1,068	106	2

Table 1.42
Fetal Deaths by Fetal Weight and Gestational Age, Michigan Residents, 1980

Fetal weight in Grams	Gestational Age in Completed Weeks									
	Total	Under 20	20-23	24-27	28-31	32-35	36-39	40-43	44 or more	Unknown
Less than 1501	590	31	130	122	96	81	31	9	4	86
1501-2500	224	1	1	9	21	52	87	30	3	20
2501 and over	298	-	2	2	4	19	102	128	19	22
Unknown	64	2	6	2	7	8	14	10	1	14
Total	1,176	34	139	135	128	160	234	177	27	142
Median[1]	1,360	480	460	595	964	1,445	2,409	3,175	3,175	720

1 - Excluding unknown fetal weight.

MORTALITY

SECTION II

MORTALITY: AN OVERVIEW 1980

RESIDENT DEATHS	74,991
CRUDE DEATH RATE	8.1
INFANT DEATHS	1,851
INFANT DEATH RATE	12.8
NEONATAL DEATHS	1,284
NEONATAL DEATH RATE	8.8
PERINATAL DEATHS	2,276
PERINATAL DEATH RATE	15.6
MATERNAL DEATHS	16
MATERNAL DEATH RATE	1.1
DEATHS FROM HEART DISEASE PER DAY	81
DEATHS FROM CANCER PER DAY	43
DEATHS FROM STROKE PER DAY	17
DEATHS FROM ACCIDENTS PER DAY	10
MEDIAN AGE AT DEATH	72 Years
MEDIAN AGE AT DEATH FOR MALES	69 Years
MEDIAN AGE AT DEATH FOR FEMALES	75 Years

MORTALITY: AN OVERVIEW 1980

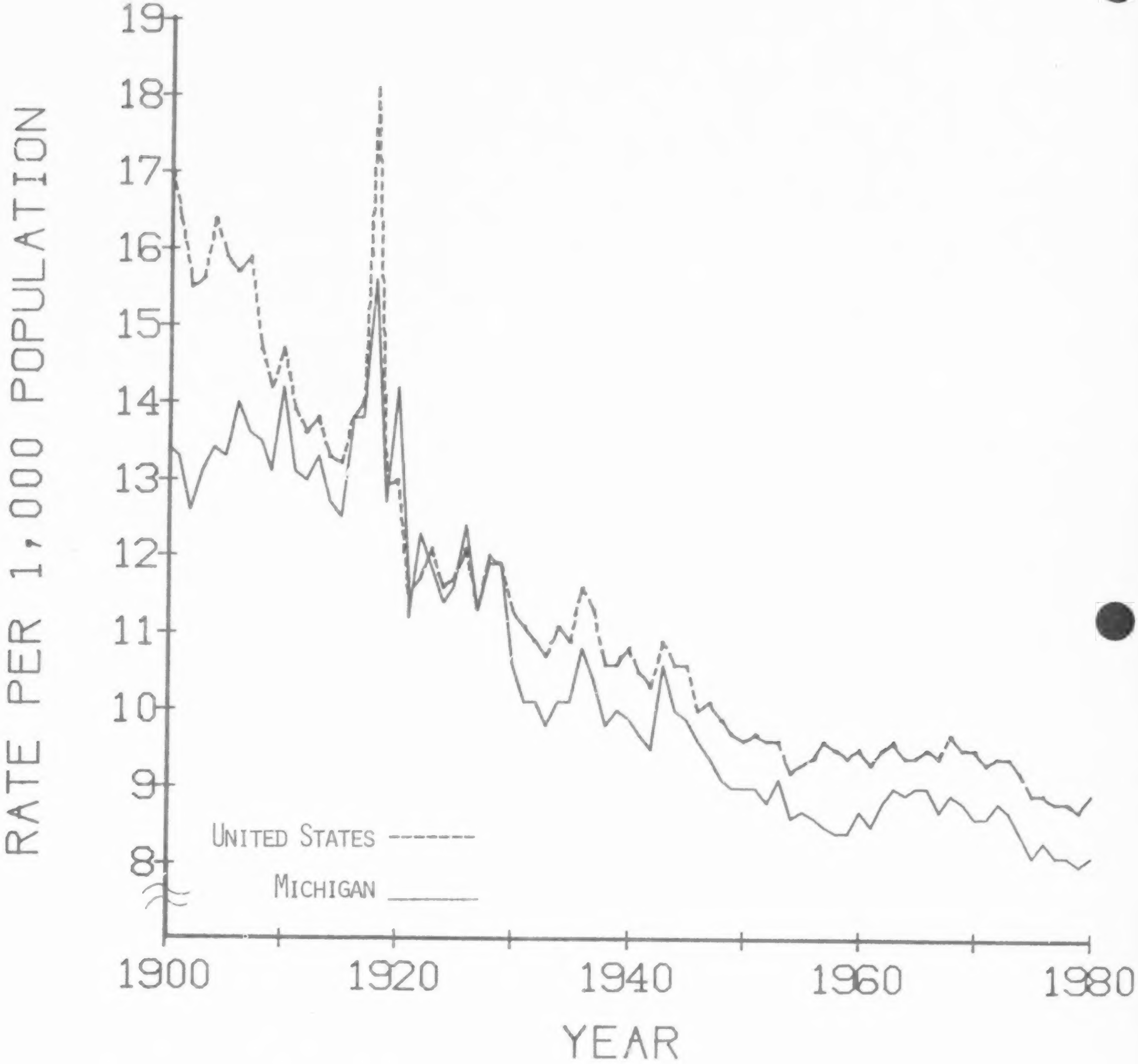
In 1980 there were 74,991 deaths recorded for Michigan residents, 1,511 more than in the previous year. The crude death rate per 1,000 population increased by 2.5 percent, from 7.9 in 1979 to 8.1 in 1980. The age-adjusted death rate increased by 0.4 percent. Age-adjusted death rates control for differences or variations in the age composition of the population, and are thus better indicators than crude death rates for showing changes in the risk of dying over a period of time or differences between sex-race groups. See the Technical Notes for method of calculation.

Between 1900 and 1980 the number of deaths occurring to Michigan residents increased from 32,453 to 74,991. The 31,472 deaths recorded in 1902 was the lowest number of resident deaths in this century, while the greatest number was recorded in 1972 when total resident deaths numbered 79,210. Although the total number of deaths increased between 1900 and 1980, the increase is due to an increasing population. The crude death rate decreased from 13.4 (per 1,000 population) in 1900 to 8.1 in 1980. The revised 1979 death rate of 7.9 was the lowest crude death rate ever recorded for Michigan. The highest death rate (15.6) was observed in 1918 (Figure 2.1).

A comparison of deaths and crude death rates for Michigan and the United States for the period 1970-1980 is presented in Table 2.1. As Michigan's population is somewhat "younger" than that of the nation, the Michigan rate has consistently been below the United States rate. Both Michigan and national rates were relatively stable between 1970 and 1973, declined in 1974 and 1975, and have remained quite stable since 1975. Between 1970 and 1980 the number of Michigan resident deaths declined by 1.7 percent, and the crude death rate declined by 5.8 percent. The decline in the age-adjusted death rate was a more dramatic 18.0 percent. Over this period the age-adjusted death rate for the nation declined by a similar amount, 16.8 percent. Between 1970 and 1978 the age-adjusted death rates of Michigan were slightly higher than those of the United States, with the exception of 1974 when Michigan's rate was 0.8 percent below the national rate. In 1979 and 1980 Michigan's age-adjusted rates were 0.3 percent and 1.0 percent, respectively, below the provisional United States rates (Table 2.6).

The numbers of deaths by marital status and age for men and women are displayed in Table 2.2. The majority of men were married at the time of death while the majority of women were widows. Men were twice as likely as women to be married at the time of death (59.7 percent compared to 29.6 percent). Conversely, women were over three times as likely to be widows at the time of death as men were to be widowers

FIGURE 2.1 - CRUDE DEATH RATES, MICHIGAN AND UNITED STATES RESIDENTS, 1900-1980[1]



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[1] 1980 United States rate is provisional

Table 2.1
Number of Deaths and Crude Death Rates, Michigan and United States Residents, 1970-1980[1]

UNITED STATES		YEAR	MICHIGAN	
NUMBER	RATE		NUMBER	RATE
1,921,031	9.5	1970	76,321	8.6
1,927,542	9.3	1971	77,395	8.6
1,963,944	9.4	1972	79,210	8.8
1,973,003	9.4	1973	78,522	8.7
1,934,388	9.2	1974	76,143	8.4
1,892,879	8.9	1975	74,522	8.2
1,909,440	8.9	1976	75,801	8.3
1,899,597	8.8	1977	74,144	8.1
1,927,788	8.8	1978	74,773	8.1
1,906,000 Pr.	8.7 Pr.	1979	73,480	7.9
1,986,000 Pr.	8.9 Pr.	1980	74,991	8.1

1 - Michigan's rates for 1971-1979 have been recalculated using revised population estimates.

Table 2.2

Deaths by Age, Sex, and Marital Status, Michigan Residents, 1980

Age	MALES						FEMALES					
	Marital Status						Marital Status					
	Total	Never Married	Divorced	Widower	Married[1]	Unknown	Total	Never Married	Divorced	Widow	Married[1]	Unknown
Under 15	1,492	1,492	-	-	-	-	1,114	1,114	-	-	-	-
15-24	1,319	1,151	18	3	146	1	512	389	16	2	104	1
25-34	1,414	573	227	16	595	3	629	191	113	18	306	1
35-44	1,480	205	329	23	917	6	861	90	182	29	558	2
45-54	3,341	358	572	109	2,291	11	1,955	123	277	219	1,331	5
55-64	7,338	626	825	510	5,354	23	4,275	217	414	1,096	2,539	9
65-74	10,165	689	752	1,373	7,314	37	6,963	365	419	3,354	2,816	9
75-84	9,601	674	419	2,535	5,941	32	9,457	471	335	6,721	1,913	17
85+	4,811	320	134	2,448	1,897	12	8,258	469	162	7,129	490	8
Unknown	3	-	-	-	-	3	1	1	-	-	-	-
All Ages	40,964	6,088	3,276	7,017	24,455	128	34,025	3,430	1,918	18,568	10,057	52

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[1] - Includes legally separated.

(54.6 percent compared to 17.1 percent). Among males, 14.9 percent had never been married, while the corresponding figure for females was 10.1 percent. Men were also more likely to be divorced (8.0 percent compared to 5.6 percent).

Table 2.3 presents data on the number of deaths by race for the period 1970-1980. The number of deaths of white persons declined by 3.5 percent over the decade while deaths of black persons increased by 11.1 percent. Reported deaths of American Indians and persons of other races remained fairly constant. It should be noted that reported race data are derived from the death certificates filed by funeral directors. Data from sources where race is self-enumerated, when matched with death data, indicate larger numbers of American Indians and persons of other races than reported as members of those groups on the death certificate.[1] In 1980 deaths of white persons numbered 64,897 and accounted for 86.5 percent of all deaths, while deaths of black persons constituted 12.9 percent of the state total.

Michigan resident deaths in 1980 are tabulated by age, race, and sex in Table 2.4. Of the 74,991 Michigan resident deaths that occurred in 1980, 40,964 (54.6 percent) occurred to males and 34,025 occurred to females (2 records had sex not stated). The median age at death for males was 69 years, compared to a significantly higher figure of 75 years for females. The median age at death was 73 years for whites, compared to 62 years for persons of other races.

In 1980, 25,731 or 34.3 percent of all deaths occurred to persons under the age of 65. The proportion dying under age 65 was higher for males than females and higher for other than white persons than for white persons. For white persons 36.9 percent of males and 24.5 percent of females died before age 65. For other than white persons 58.9 percent of males and 48.5 percent of females died before age 65.

Unadjusted, age-specific, and age-adjusted death rates by race and sex are presented in Table 2.5. The unadjusted rate for males of 907.1 was 26.5 percent above that for females while the age-adjusted rate for males was 76.4 percent higher. The population subgroup with the lowest unadjusted death rate was other than white females (579.1) and the highest unadjusted rate was experienced by white males (914.2). Age-adjusting the data results in a quite different relationship, however, with the age-adjusted rate being lowest for white females and highest for other than

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[1] National Center for Health Statistics, Comparability of Marital Status, Race, Nationality and Country of Origin in the Death Certificate and Matching Census Record: United States, May - August, 1960 (Washington, D.C., 1969).

Table 2.3
Number of Deaths by Race[1], Michigan Residents, 1970-1980

	All Races	White	Black	American Indian	Other[2]
1970	76,321	67,270	8,731	127	54
1971	77,395	67,847	9,259	128	45
1972	79,210	69,598	9,409	126	40
1973	78,522	68,502	9,641	121	54
1974	76,143	66,600	9,233	128	58
1975	74,522	65,191	9,024	118	60
1976	75,801	66,334	9,146	125	70
1977	74,144	64,816	9,038	140	53
1978	74,773	65,149	9,254	152	72
1979	73,480	63,955	9,188	129	75
1980	74,991	64,897	9,704	137	93

1 - Deaths with race not stated included in total column only.
Persons of Spanish or of Mexican American descent are included with whites.

2 - Includes Japanese, Hawaiian, other Asian or Pacific Islander.
Indians from India were counted as "White" from 1970-1977 and with "Other" in 1978, 1979, and 1980.

TABLE 2.4
NUMBER OF DEATHS BY AGE, RACE, AND SEX <1>, MICHIGAN RESIDENTS, 1980

AGE IN YEARS	ALL RACES			WHITE			ALL OTHER			RACE NOT STATED		
	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE
UNDER 1	1851	1045	805	1246	727	519	597	315	281	8	3	5
1-4	310	184	126	221	123	98	85	59	26	4	2	2
5-9	208	118	90	175	99	76	32	18	14	1	1	-
10-14	238	145	93	190	112	78	44	30	14	4	3	1
15-19	748	544	204	622	453	169	121	86	35	5	5	-
20-24	1083	775	308	825	611	214	253	162	91	5	2	3
25-29	1035	731	304	697	505	192	333	221	112	5	5	-
30-34	1008	683	325	658	448	210	349	234	115	1	1	-
35-39	1048	676	372	701	441	260	342	233	109	5	2	3
40-44	1293	804	489	950	577	373	339	225	114	4	2	2
45-49	1974	1240	734	1509	955	554	458	281	177	7	4	3
50-54	3322	2101	1221	2661	1698	963	653	398	255	8	5	3
55-59	5041	3235	1806	4171	2688	1483	861	541	320	9	6	3
60-64	6572	4103	2469	5604	3511	2093	952	580	372	16	12	4
65-69	8086	4882	3204	7016	4268	2748	1054	606	448	16	8	8
70-74	9042	5283	3759	8042	4739	3303	986	534	452	14	10	4
75-79	9712	5227	4485	8749	4698	4051	950	520	430	13	9	4
80-84	9346	4374	4972	8589	3992	4597	744	374	370	13	8	5
85-89	7702	3091	4610	7239	2884	4354	449	201	248	14	6	8
90+	5368	1720	3648	5030	1593	3437	332	123	209	6	4	2
NOT STATED	4	3	1	2	1	1	-	-	-	2	2	-
ALL AGES	74991	40964	34025	64897	35123	29773	9934	5741	4192	160	100	60
MEDIAN AGE AT LAST BIRTHDAY	72	69	75	73	70	77	62	60	65	62	62	66

<1> THE DEATHS OF ONE WHITE AND ONE OTHER THAN WHITE PERSON WITH SEX NOT STATED ARE INCLUDED ONLY IN THE TOTAL COLUMNS.

TABLE 2.5
DEATH RATES BY AGE, RACE, AND SEX <1>, MICHIGAN RESIDENTS, 1980

AGE	ALL RACES			WHITE			OTHER THAN WHITE		
	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE
ALL AGES-CRUDE RATE	809.7	907.1	717.0	826.1	914.2	741.8	716.3	865.9	579.1
UNDER 1 YEAR	1266.3	1402.6	1124.6	1063.9	1210.6	910.3	2108.6	2217.5	1998.9
1-14 YEARS	36.6	42.3	30.6	35.5	39.4	31.3	41.2	54.7	27.4
15-24 YEARS	102.0	147.1	56.9	96.0	140.7	51.0	134.1	183.0	87.9
25-34 YEARS	134.8	189.1	81.9	106.3	150.0	62.8	288.0	416.0	177.7
35-44 YEARS	227.5	293.2	164.2	186.9	232.8	142.0	483.6	696.1	297.3
45-54 YEARS	568.9	739.1	408.2	514.7	669.8	366.3	940.6	1241.8	681.5
55-64 YEARS	1342.9	1791.8	939.0	1277.4	1710.0	887.6	1856.2	2438.6	1339.1
65-74 YEARS	3077.8	4155.5	2232.5	3034.1	4134.3	2173.2	3443.9	4330.8	2734.2
75-84 YEARS	6953.1	9261.9	5548.8	6959.3	9306.5	5551.4	6889.4	8850.0	5521.0
85 AND OVER	16011.7	19026.4	14657.7	16274.2	19291.5	14931.2	12782.9	16015.6	11165.4
AGE-ADJUSTED RATE<2>	588.0	773.9	438.7	560.3	740.1	417.1	761.0	993.1	569.4

<1> DEATHS WITH SEX OR RACE NOT STATED WERE RANDOMLY ALLOCATED PRIOR TO COMPUTATION OF AGE-SPECIFIC DEATH RATES. DEATHS WITH AGE NOT STATED WERE INCLUDED IN THE CATEGORY 85 AND OVER.

<2> BASED ON AGE-SPECIFIC DEATH RATES PER 100,000 POPULATION IN SPECIFIED GROUP. COMPUTED BY THE DIRECT METHOD, USING AS THE STANDARD POPULATION THE AGE DISTRIBUTION OF THE TOTAL POPULATION OF THE UNITED STATES AS ENUMERATED IN 1940; SEE TECHNICAL NOTES.

* RATE IS CONSIDERED STATISTICALLY UNRELIABLE.

white males.

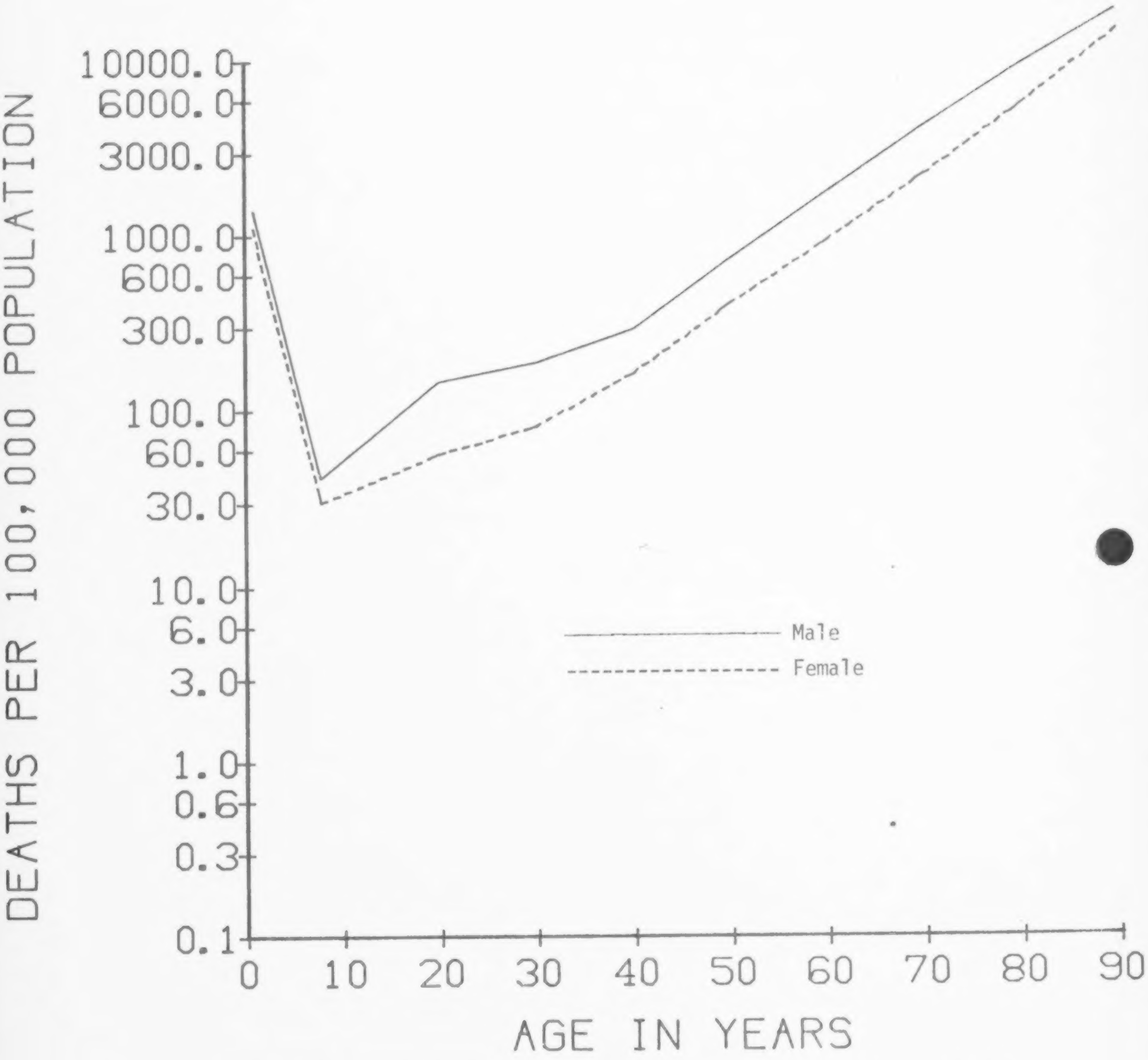
The age-specific death rates for all males and all females displayed in Figure 2.2 indicate a similar pattern. The rates for both sexes declined from birth to a low for ages 1-14 years. The rate for 15-24 year olds was much higher than for 1-14 year olds in both sexes (3.5 and 1.9 times as high, respectively, for males and females). The rates for both sexes rose persistently through the terminal age group (85 years and over). The rates for males were consistently above those for females with the greatest relative differential occurring in the age group 15-24 years, where the rate for males was 2.6 times that for females.

A comparison by race of 1980 age-specific death rates for males is graphically presented in Figure 2.3. Rates for males of both races increased dramatically from the age group 1-14 years to the age group 15-24 years. Between ages 15-24 and 25-34 the rate for white males increased by 6.6 percent, while the corresponding increase for other than white males was 127.3 percent. Rates for other than white males were above those for white males at all ages prior to 75 years. The largest relative differentials were for persons from 25 through 44 years of age, where rates for other than white males were 2.8 to 3.0 times those of white males. Beyond age 74 the rates for white males were higher. The overall death rate of 865.9 per 100,000 for other than white males was 5.3 percent below the rate for white males (914.2). This is a reflection of the younger age distribution of the other than white male population. The age-adjusted death rate for other than white males was 34.2 percent higher than that for white males.

Rates for other than white females were higher than those for white females except in the age group 1-14 years and beyond age 74 (Figure 2.4). For infants under the age of one year and for women from 15 through 54 years, the rate for other than white females ranged between 1.7 and 2.8 times the rate for white females. The death rate for all ages was 741.8 for white females and 579.1 for other than white females, reflecting the greater concentration of the white female population in the older age intervals with relatively high death rates. After adjusting for differences in the age distributions of the populations, the rate for other than white females was 36.5 percent higher than that for their white counterparts.

Age-adjusted death rates for other than white persons have been considerably higher than comparable rates for white persons since 1970 (Table 2.6). Age-adjusted rates for other than white males ranged between 28 percent (in 1978) and 39 percent (in 1973) higher than comparable rates for white males in Michigan. For females this differential

FIGURE 2.2 - Age-Specific Death Rates[1] by Sex, Michigan Residents, 1980



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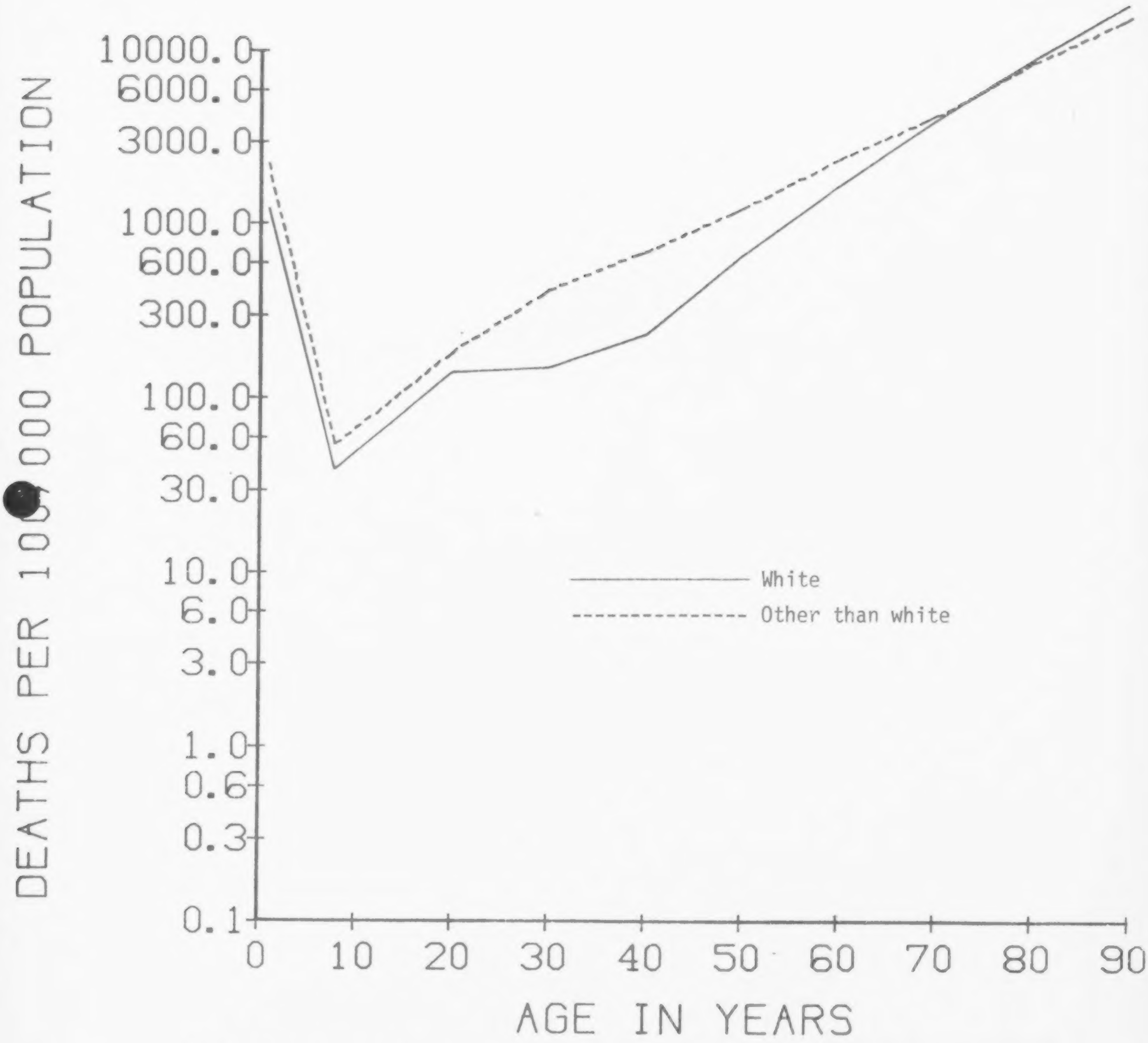
[1] Note that death rates are shown on a logarithmic scale: vertical distances represent relative differences in rate rather than absolute differences.

FIGURE 2.3 - Age-Specific Death Rates[1] by Race, Michigan Resident Males, 1980



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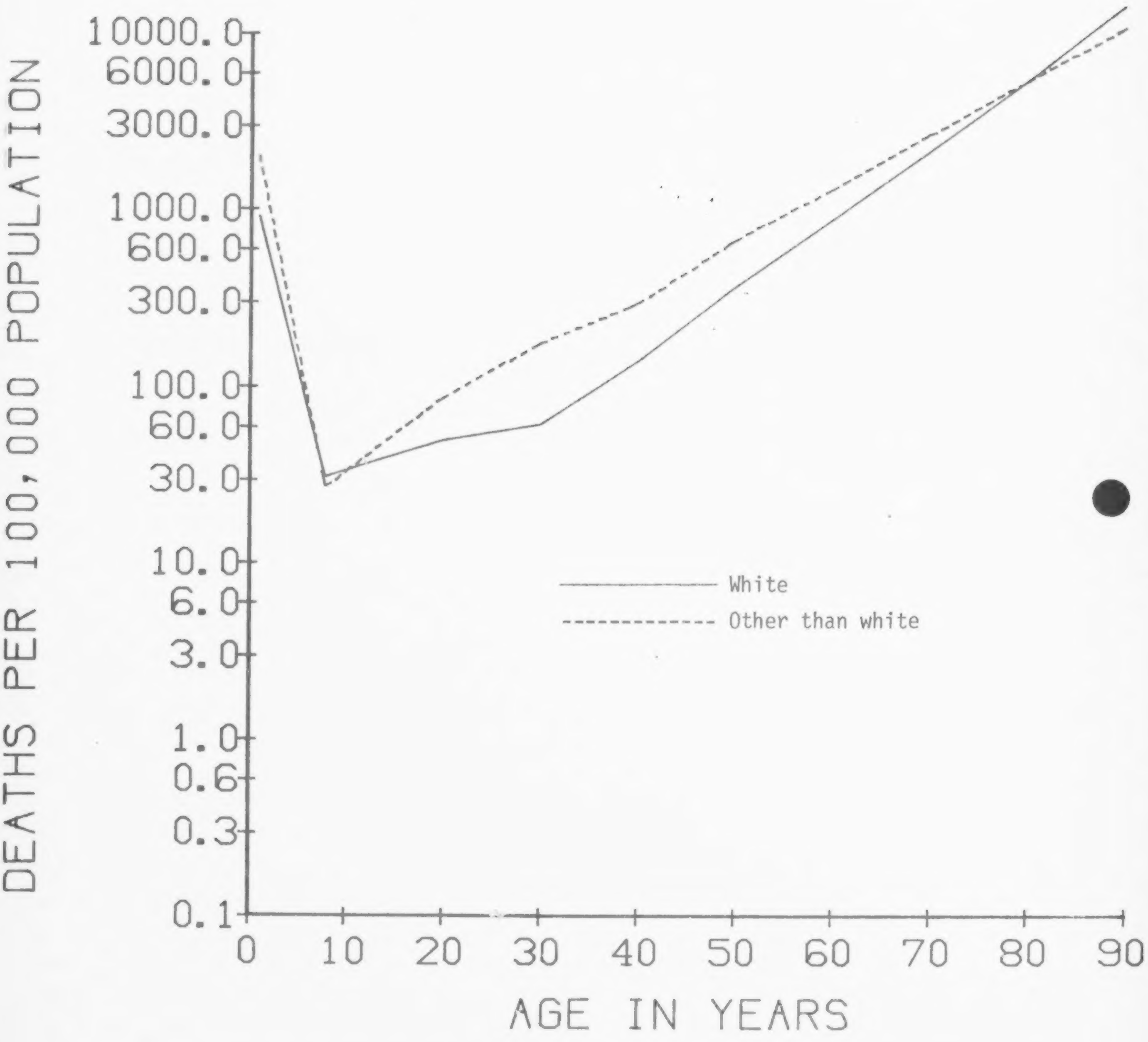
[1] Note that death rates are shown on a logarithmic scale: vertical distances represent relative differences in rate rather than absolute differences.

FIGURE 2.4 - Age-Specific Death Rates[1] by Race, Michigan Resident Females, 1980



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[1] Note that death rates are shown on a logarithmic scale: vertical distances represent relative differences in rate rather than absolute differences.

Table 2.6
Age-Adjusted Death Rates[1] by Race and Sex, Michigan[2] and United States Residents, 1970-1980

Place	Year	All Races			White			Other Than White		
		Total	Male	Female	Total	Male	Female	Total	Male	Female
Mich.	1970	717.5	925.9	537.3	685.5	889.4	510.8	961.5	1,201.7	744.8
	1971	707.9	922.9	524.0	673.0	881.9	496.0	962.4	1,216.4	734.5
	1972	711.1	928.2	526.4	678.1	889.3	500.0	942.5	1,203.3	711.0
	1973	694.3	906.3	513.7	659.7	864.5	486.9	932.3	1,198.7	697.8
	1974	660.7	865.1	488.0	630.0	826.9	465.3	864.5	1,123.4	637.7
	1975	640.2	840.3	472.4	612.0	803.2	453.4	822.5	1,087.4	592.3
	1976	636.1	838.5	469.1	609.4	804.5	450.0	808.8	1,062.8	590.5
	1977	614.3	814.8	449.4	589.8	785.1	430.5	774.0	1,008.6	574.0
	1978	606.3	797.8	449.8	581.5	769.7	428.7	767.8	981.7	587.2
	1979	585.4	775.5	431.5	561.0	746.8	411.9	739.9	960.2	554.8
	1980	588.0	773.9	438.7	560.3	740.1	417.1	761.0	993.1	569.4
U.S.	1970	714.3	931.6	532.5	679.6	893.4	501.7	983.4	1,231.4	770.8
	1971	699.9	915.7	521.1	665.8	878.4	490.9	963.6	1,210.7	754.9
	1972	701.8	921.9	520.0	667.6	883.2	490.8	955.4	1,227.2	745.0
	1973	692.9	911.7	513.1	659.3	874.1	483.7	953.1	1,206.7	738.9
	1974	666.2	877.8	492.9	635.4	843.0	466.4	901.3	1,149.1	693.1
	1975	638.3	845.3	469.3	609.8	812.7	445.3	852.4	1,097.5	648.3
	1976	627.5	830.2	462.9	599.9	798.8	439.6	833.7	1,072.1	635.1
	1977	612.3	811.9	450.6	585.4	781.5	427.8	814.0	1,045.9	621.3
	1978	606.1	802.8	447.0	580.2	773.1	425.5	797.6	1,029.6	605.5
	1979	587.4[3]	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -
	1980	594.1[3]	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -

1 - Based on age-specific death rates per 100,000 population in specified group. Computed by the direct method, using as the standard population the age distribution of the total population of the United States as enumerated in 1940; see Technical Notes.

2 - Rates for Michigan for 1970-1979 have been revised; see Technical Notes.

3 - Provisional.

is even greater with the rate for other than white women exceeding that for white women by 31 to 48 percent.

Declines have occurred since 1970 both in Michigan and the United States in age-adjusted death rates in each race-sex subgroup. Michigan's age-adjusted rate for the population as a whole declined by 18.0 percent between 1970 and 1980 while the estimated decline for the United States was 16.8 percent. Relative declines in both Michigan and the United States were slightly greater for the other than white population. Although age-adjusted rates for white males and females in Michigan are comparable to rates for these groups observed nationally, the rates for other than white males and females in Michigan have generally been somewhat below those for the nation in the past several years.

LEADING CAUSES OF DEATH

Deaths assigned to the 10 leading causes accounted for 85.9 percent of all deaths in 1980. Causes of death since 1979 are classified according to the Ninth Revision International Classification of Diseases (ICD-9) published by the World Health Organization. Cause-of-death ranking used in Michigan is identical to that used by the National Center for Health Statistics (NCHS). It is based on the List of 72 Selected Causes of Death, which NCHS constructed by combining titles in the List of 282 Selected Causes of Death. This latter list, which is also used in this publication, was constructed by aggregating the detailed titles of the Ninth Revision.

The numbers of deaths and the death rates for the 10 leading causes for 1980 are shown in Table 2.7, and the percentage of total deaths resulting from each of these causes is illustrated in Figure 2.5. The ranking of the 10 leading causes for 1980 was identical to that for 1979. Crude death rates in Michigan were higher in 1980 than in 1979 for seven of the ten leading causes. The rates were lower in 1980 for deaths due to accidents and adverse effects, chronic liver disease and cirrhosis, and suicide.

The order of the 10 leading causes for the United States in 1980 was identical to that for Michigan. Certain differences between the United States figures and those of Michigan should be noted. The overall Michigan death rate was significantly lower than the national rate. Michigan's rates for diabetes mellitus, chronic liver disease and cirrhosis, and atherosclerosis, however, were higher than comparable national rates (Table 2.7).

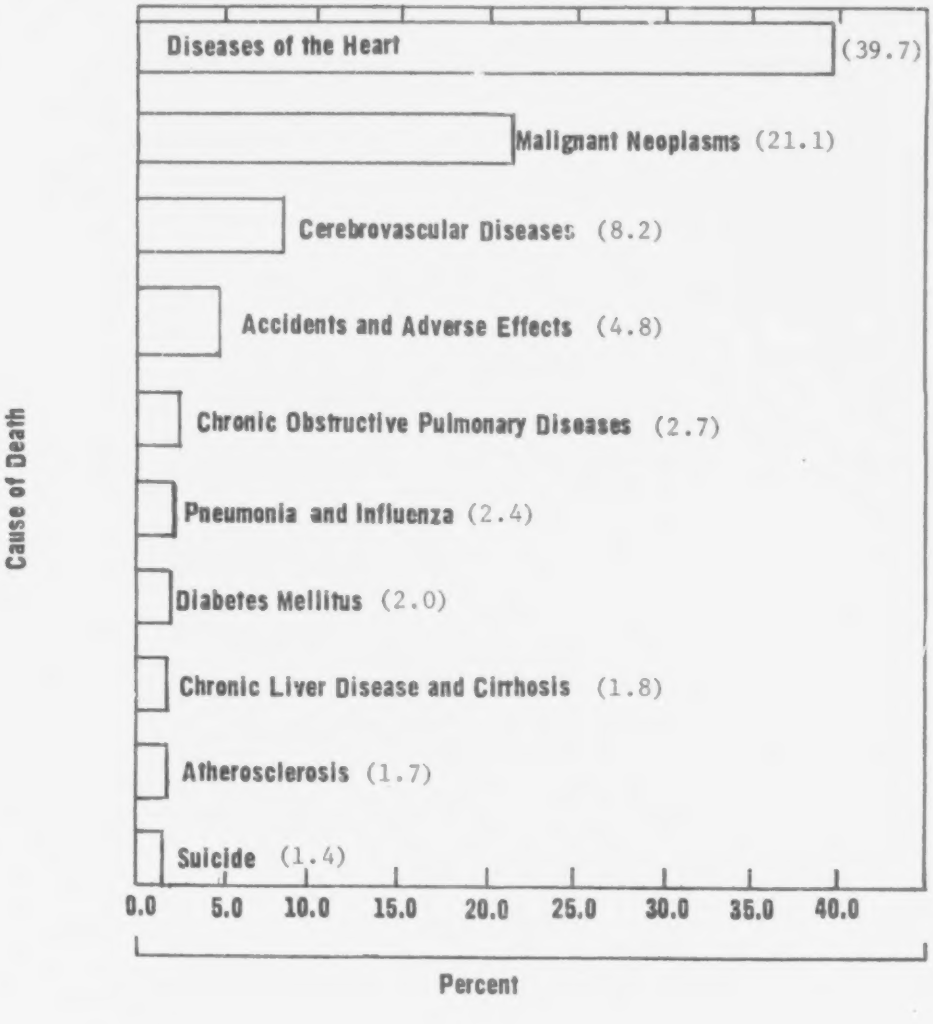
During the years 1968-1978 the Eighth Revision International Classification of Diseases, Adapted for Use in the United States (ICDA-8) was used to classify causes of death. The introduction of the Ninth Revision in 1979 resulted in a change in the ranking of the 10 leading causes between 1978 and 1979. The ranking of the four leading causes of death, heart disease, cancer, strokes, and accidents, has not changed. However, the fifth leading cause of death in 1979 and 1980, chronic obstructive pulmonary diseases and allied conditions, is a new category, comparable to the Eighth Revision categories of bronchitis, emphysema, asthma, and chronic obstructive lung disease without mention of asthma, bronchitis, or emphysema. This latter category was used increasingly by physicians during the 1970's in preference to the more specific categories. During the years in which the Eighth Revision was used, bronchitis, emphysema, and asthma were grouped together for purposes of ranking, and chronic obstructive lung disease without mention of asthma, bronchitis, or emphysema was not used in ranking. The order of the causes ranked sixth to

Table 2.7
Leading Causes of Death and Cause-Specific Rates, Michigan and United States Residents, 1980

RANK	CAUSE OF DEATH	NUMBER OF DEATHS		RATE	
		MICHIGAN	U.S.[1]	MICHIGAN	U.S.[1]
1	Diseases of the Heart	29,790	763,060	321.6	343.0
2	Malignant Neoplasms	15,828	414,320	170.9	186.3
3	Cerebrovascular Diseases	6,164	170,420	66.6	76.6
4	Accidents and Adverse Effects	3,627	106,550	39.2	47.9
5	Chronic Obstructive Pulmonary Diseases and Allied Conditions	2,060	55,810	22.2	25.1
6	Pneumonia and Influenza	1,808	52,720	19.5	23.7
7	Diabetes Mellitus	1,467	34,230	15.8	15.4
8	Chronic Liver Disease and Cirrhosis	1,362	31,330	14.7	14.1
9	Atherosclerosis	1,254	29,830	13.5	13.4
10	Suicide	1,061	28,290	11.5	12.7
	Sub Total	64,421	1,686,560	695.5	758.0
	All Other Causes	10,570	299,440	114.1	134.6
	Total	74,991	1,986,000	809.7	892.6

1 - United States figures are provisional.

FIGURE 2.5 - Leading Causes of Death, Michigan Residents, 1980



tenth in 1979 and 1980 is identical to that of the causes ranked fifth to ninth in 1978. The tenth leading cause of death in 1978, homicide, is no longer ranked among the top ten. The number of homicides in 1980 was 1,011.

Table 4.8 shows the numbers of deaths and death rates for several major causes for each year during this century. There has been no change in the ranking of the four leading causes since 1950. From 1950 through 1978 the ranking of 5th and 6th were held by diabetes mellitus and pneumonia and influenza, with pneumonia and influenza ranking 5th in 19 of the 29 years. For the past six years pneumonia and influenza has ranked before diabetes. The 8th leading cause of death in 1980, chronic liver disease and cirrhosis (formerly titled cirrhosis of the liver) was not among the ten leading causes of death in 1950. This cause ranked 10th in 1954 and has been among the ten most frequent causes consistently since 1960. It was the 7th leading cause each year from 1969 through 1978. Atherosclerosis, previously termed arteriosclerosis, has consistently been among the ten leading causes of death, ranking 7th in 1950 and 9th in 1980. Suicide first ranked in the top ten in 1964 when it was the 10th leading cause. During the past seven years atherosclerosis and suicide have alternately ranked 8th, 9th, and 10th. In 1980, seven of the ten leading causes of death were chronic conditions, one was an acute disease category, and two were external non-disease groupings.

While the most frequent causes of death among all Michigan residents have changed little in recent years, this does not imply similarity in the leading causes of death among residents at different ages, of different sexes or different races. Table 2.8 presents the five most frequent causes of death by age, sex and race. Careful examination of this table will disclose that major differences in the leading causes of death are associated with these three characteristics. No single cause of death is among the most frequent causes in all categories. Heart disease, malignant neoplasms and accidents have the most widespread significance, being present respectively in 30, 25, and 25 of the 32 age-sex-race groupings. The variation in leading causes of death by age is most evident among deaths to infants under one year. This category has little similarity to any other age group. External causes of death, including accidents, suicide and homicide, are predominant killers among persons 1 through 34 years of age. Among persons 35 years and over, chronic conditions are responsible for the majority of deaths.

Table 2.8
Leading Causes of Death and Cause-Specific Rates by Age, Sex, and Race, Michigan Residents, 1980

TOTAL[1]

AGE	RANK AND CAUSE OF DEATH	NUMBER	SPECIFIC RATE
All Ages	1. Diseases of the Heart	29,790	321.6
	2. Malignant Neoplasms	15,828	170.9
	3. Cerebrovascular Diseases	6,164	66.6
	4. Accidents and Adverse Effects	3,627	39.2
	5. Chronic Obstructive Pulmonary Diseases and Allied Conditions	2,060	22.2
	All Causes	74,991	809.7
Under 1 Year	1. Certain Conditions Originating in the Perinatal Period	1,028	703.3
	2. Congenital Anomalies	321	219.6
	3. Accidents and Adverse Effects	39	26.7
	4. Pneumonia and Influenza	27	18.5
	5. Diseases of the Heart	20	13.7
	All Causes	1,851	1,266.3
1-4 Years	1. Accidents and Adverse Effects	130	24.1
	2. Congenital Anomalies	34	6.3
	3. Malignant Neoplasms	26	4.8
	4. Homicide	16	3.0
	5. Diseases of the Heart	14	2.6
	All Causes	310	57.5
5-14 Years	1. Accidents and Adverse Effects	242	15.8
	2. Malignant Neoplasms	59	3.9
	3. Homicide	29	1.9
	4. Congenital Anomalies	20	1.3
	5. Diseases of the Heart	13	0.9
	All Causes	446	29.2
15-24 Years	1. Accidents and Adverse Effects	911	50.7
	2. Homicide and Legal Intervention	274	15.3
	3. Suicide	214	11.9
	4. Malignant Neoplasms	113	6.3
	5. Diseases of the Heart	53	3.0
	All Causes	1,831	102.0
25-34 Years	1. Accidents and Adverse Effects	567	37.4
	2. Homicide and Legal Intervention	316	20.9
	3. Suicide	271	17.9
	4. Malignant Neoplasms	196	12.9
	5. Diseases of the Heart	128	8.4
	All Causes	2,043	134.8

Table 2.8
Leading Causes of Death and Cause-Specific Rates by Age, Sex, and Race, Michigan Residents, 1980 (cont.)

TOTAL[1]

AGE	RANK AND CAUSE OF DEATH	NUMBER	SPECIFIC RATE
35-49 Years	1. Diseases of the Heart	1,087	73.7
	2. Malignant Neoplasms	1,073	72.8
	3. Accidents and Adverse Effects	513	34.8
	4. Chronic Liver Disease and Cirrhosis	290	19.7
	5. Suicide	218	14.8
	All Causes	4,315	292.6
50-64 Years	1. Diseases of the Heart	5,666	419.6
	2. Malignant Neoplasms	4,880	361.4
	3. Cerebrovascular Diseases	712	52.7
	4. Chronic Liver Disease and Cirrhosis	628	46.5
	5. Accidents and Adverse Effects	488	36.1
	All Causes	14,935	1,106.1
65 and Over	1. Diseases of the Heart	22,809	2,500.3
	2. Malignant Neoplasms	9,476	1,038.7
	3. Cerebrovascular Diseases	5,212	571.3
	4. Chronic Obstructive Pulmonary Diseases and Allied Conditions	1,600	175.4
	5. Pneumonia and Influenza	1,485	162.8
	All Causes	49,256	5,399.3

1 - Note subtotals by race do not add to the grand total as the race was not stated on records for 100 males and 60 females. In addition, the sex was not stated on 1 record each for white and other than white persons. Age groups do not add to respective totals because records with age not stated are included in the total.

2 - Rates may not agree with those shown elsewhere in this section since records of unknown race were randomly assigned to white and other than white before rates were calculated for the other tables, and were not included in calculations for this table.

Table 2.8
Leading Causes of Death and Cause-Specific Rates by Age, Sex, and Race, Michigan Residents, 1980

WHITE MALES[2]

AGE	RANK AND CAUSE OF DEATH	NUMBER	SPECIFIC RATE
All Ages	1. Diseases of the Heart	14,393	373.7
	2. Malignant Neoplasms	7,541	195.8
	3. Cerebrovascular Diseases	2,266	58.8
	4. Accidents and Adverse Effects	2,132	55.4
	5. Chronic Obstructive Pulmonary Diseases and Allied Conditions	1,292	33.5
	All Causes	35,123	911.9
Under 1 Year	1. Certain Conditions Originating in the Perinatal Period	379	628.5
	2. Congenital Anomalies	149	247.1
	3. Accidents and Adverse Effects	16	26.5
	4. Pneumonia and Influenza	12	19.9
	5. Diseases of the Heart	11	18.2
	All Causes	727	1,025.7
1-4 Years	1. Accidents and Adverse Effects	51	22.9
	2-3. Congenital Anomalies	13	5.8
	Malignant Neoplasms	13	5.8
	4. Homicide	6	2.7
	5. Diseases of the Heart	4	1.8
	All Causes	123	55.1
5-14 Years	1. Accidents and Adverse Effects	118	18.6
	2. Malignant Neoplasms	25	3.9
	3. Congenital Anomalies	12	1.9
	4. Homicide	8	1.3
	5-6. Pneumonia and Influenza & Suicide	5	0.8
	All Causes	211	33.2
15-24 Years	1. Accidents and Adverse Effects	631	83.0
	2. Suicide	165	21.7
	3. Homicide and Legal Intervention	70	9.2
	4. Malignant Neoplasms	69	9.1
	5. Diseases of the Heart	29	3.8
	All Causes	1,064	139.9
25-34 Years	1. Accidents and Adverse Effects	370	58.0
	2. Suicide	174	27.3
	3. Malignant Neoplasms	80	12.5
	4. Homicide and Legal Intervention	75	11.8
	5. Diseases of the Heart	54	8.5
	All Causes	953	149.5

Table 2.8

Leading Causes of Death and Cause-Specific Rates by Age, Sex, and Race, Michigan Residents, 1980 (cont.)

WHITE MALES[2]

AGE	RANK AND CAUSE OF DEATH	NUMBER	SPECIFIC RATE
35-49 Years	1. Diseases of the Heart	652	103.9
	2. Malignant Neoplasms	413	65.8
	3. Accidents and Adverse Effects	303	48.3
	4. Suicide	136	21.7
	5. Chronic Liver Disease and Cirrhosis	121	19.3
	All Causes	1,973	314.3
50-64 Years	1. Diseases of the Heart	3,481	608.6
	2. Malignant Neoplasms	2,259	395.0
	3. Chronic Liver Disease and Cirrhosis	334	58.4
	4. Cerebrovascular Diseases	296	51.8
	5. Accidents and Adverse Effects	278	48.6
	All Causes	7,897	1,380.8
65 and Over	1. Diseases of the Heart	10,158	3,031.8
	2. Malignant Neoplasms	4,678	1,396.2
	3. Cerebrovascular Diseases	1,903	568.0
	4. Chronic Obstructive Pulmonary Diseases and Allied Conditions	1,061	316.7
	5. Pneumonia and Influenza	658	196.4
	All Causes	22,174	6,618.1

Table 2.8
Leading Causes of Death and Cause-Specific Rates by Age, Sex, and Race, Michigan Residents, 1980

ALL OTHER MALES[2]

AGE	RANK AND CAUSE OF DEATH	NUMBER	SPECIFIC RATE
All Ages	1. Diseases of the Heart	1,701	255.9
	2. Malignant Neoplasms	1,151	173.2
	3. Homicide and Legal Intervention	498	74.9
	4. Accidents and Adverse Effects	349	52.5
	5. Cerebrovascular Diseases	346	52.1
	All Causes	5,741	863.7
Under 1 Year	1. Certain Conditions Originating in the Perinatal Period	184	1,295.3
	2. Congenital Anomalies	38	267.5
	3. Pneumonia and Influenza	5	35.2
	4-5. Accidents and Adverse Effects	4	28.2
	Meningitis	4	28.2
	All Causes	315	2,217.5
1-4 Years	1. Accidents and Adverse Effects	22	41.9
	2. Homicide and Legal Intervention	7	13.3
	3. Congenital Anomalies	6	11.4
	4. Diseases of the Heart	4	7.6
	5. Several categories are tied for 5th rank	2	3.8
	All Causes	59	112.3
5-14 Years	1. Accidents and Adverse Effects	26	17.7
	2. Homicide	6	4.1
	3. Malignant Neoplasms	5	3.4
	4-5. Anemias	2	1.4
	Diseases of the Heart	2	1.4
	All Causes	48	32.7
15-24 Years	1. Homicide and Legal Intervention	128	94.1
	2. Accidents and Adverse Effects	47	34.6
	3. Suicide	18	13.2
	4. Malignant Neoplasms	11	8.1
	5. Diseases of the Heart	10	7.4
	All Causes	248	182.3
25-34 Years	1. Homicide and Legal Intervention	166	150.8
	2. Accidents and Adverse Effects	68	61.8
	3. Suicide	35	31.8
	4. Chronic Liver Disease and Cirrhosis	27	24.5
	5. Diseases of the Heart	22	20.0
	All Causes	455	413.3

Table 2.8

Leading Causes of Death and Cause-Specific Rates by Age, Sex, and Race, Michigan Residents, 1980 (cont.)

ALL OTHER MALES[2]

AGE	RANK AND CAUSE OF DEATH	NUMBER	SPECIFIC RATE
35-49 Years	1. Diseases of the Heart	170	183.7
	2. Homicide and Legal Intervention	128	138.3
	3. Malignant Neoplasms	92	99.4
	4. Chronic Liver Disease and Cirrhosis	71	76.7
	5. Accidents and Adverse Effects	67	72.4
	All Causes	739	798.4
50-64 Years	1. Diseases of the Heart	529	714.8
	2. Malignant Neoplasms	442	597.2
	3. Cerebrovascular Diseases	90	121.6
	4. Chronic Liver Disease and Cirrhosis	89	120.3
	5. Accidents and Adverse Effects	63	85.1
	All Causes	1,519	2,052.5
65 and Over	1. Diseases of the Heart	962	2,496.8
	2. Malignant Neoplasms	581	1,507.9
	3. Cerebrovascular Diseases	214	555.4
	4. Pneumonia and Influenza	79	205.0
	5. Chronic Obstructive Pulmonary Diseases and Allied Conditions	69	179.1
	All Causes	2,358	6,119.9

Table 2.8
Leading Causes of Death and Cause-Specific Rates by Age, Sex, and Race, Michigan Residents, 1980

WHITE FEMALES[2]

AGE	RANK AND CAUSE OF DEATH	NUMBER	SPECIFIC RATE
All Ages	1. Diseases of the Heart	12,206	303.6
	2. Malignant Neoplasms	6,328	157.4
	3. Cerebrovascular Diseases	3,131	77.9
	4. Accidents and Adverse Effects	996	24.8
	5. Pneumonia and Influenza	774	19.3
	All Causes	29,773	740.5
Under 1 Year	1. Certain Conditions Originating in the Perinatal Period	272	472.5
	2. Congenital Anomalies	104	180.7
	3. Accidents and Adverse Effects	13	22.6
	4. Pneumonia and Influenza	8	13.9
	5. Diseases of the Heart	3	5.2
	All Causes	519	901.6
1-4 Years	1. Accidents and Adverse Effects	44	20.8
	2. Congenital Anomalies	14	6.6
	3. Malignant Neoplasms	10	4.7
	4. Diseases of the Heart	4	1.9
	5. Certain Conditions Originating in Perinatal Period	3	1.4
	All Causes	98	46.3
5-14 Years	1. Accidents and Adverse Effects	85	14.1
	2. Malignant Neoplasms	24	4.0
	3. Homicide and Legal Intervention	8	1.3
	4. Congenital Anomalies	7	1.2
	5. Diseases of the Heart	5	0.8
	All Causes	154	25.6
15-24 Years	1. Accidents and Adverse Effects	205	27.2
	2. Homicide and Legal Intervention	33	4.4
	3. Suicide	28	3.7
	4. Malignant Neoplasms	27	3.6
	5. Diseases of the Heart	6	0.8
	All Causes	383	50.8
25-34 Years	1. Accidents and Adverse Effects	109	17.0
	2. Malignant Neoplasms	84	13.1
	3. Suicide	52	8.1
	4. Diseases of the Heart	30	4.7
	5. Homicide and Legal Intervention	23	3.6
	All Causes	402	62.8

Table 2.8
Leading Causes of Death and Cause-Specific Rates by Age, Sex, and Race, Michigan Residents, 1980 (cont.)

WHITE FEMALES[2]

AGE	RANK AND CAUSE OF DEATH	NUMBER	SPECIFIC RATE
35-49 Years	1. Malignant Neoplasms	462	71.4
	2. Diseases of the Heart	178	27.5
	3. Accidents and Adverse Effects	118	18.2
	4. Cerebrovascular Diseases	66	10.2
	5. Suicide	65	10.0
	All Causes	1,187	183.4
50-64 Years	1. Malignant Neoplasms	1,876	302.3
	2. Diseases of the Heart	1,331	214.5
	3. Cerebrovascular Diseases	249	40.1
	4. Chronic Liver Disease and Cirrhosis	151	24.3
	5. Chronic Obstructive Pulmonary Diseases and Allied Conditions	133	21.4
	All Causes	4,539	731.5
65 and Over	1. Diseases of the Heart	10,649	2,186.0
	2. Malignant Neoplasms	3,844	789.1
	3. Cerebrovascular Diseases	2,799	574.6
	4. Atherosclerosis	690	141.6
	5. Pneumonia and Influenza	684	140.4
	All Causes	22,490	4,616.8

Table 2.8
Leading Causes of Death and Cause-Specific Rates by Age, Sex, and Race, Michigan Residents, 1980

ALL OTHER FEMALES[2]

AGE	RANK AND CAUSE OF DEATH	NUMBER	SPECIFIC RATE
All Ages	1. Diseases of the Heart	1,431	197.3
	2. Malignant Neoplasms	792	109.2
	3. Cerebrovascular Diseases	412	56.8
	4. Certain Conditions Originating in the Perinatal Period	186	25.7
	5. Homicide and Legal Intervention	137	18.9
	All Causes	4,192	578.1
Under 1 Year	1. Certain Conditions Originating in the Perinatal Period	186	1,318.4
	2. Congenital Anomalies	29	205.6
	3-4. Accidents and Adverse Effects	5	35.4
	Nephritis, Nephrotic Syndrome, & Nephrosis	5	35.4
	5. Diseases of the Heart	4	28.4
	All Causes	281	1,991.8
1-4 Years	1. Accidents and Adverse Effects	11	21.2
	2. Homicide and Legal Intervention	3	5.8
	3-5. Cerebrovascular Diseases	2	3.9
	Pneumonia and Influenza	2	3.9
	Diseases of the Heart	2	3.9
	All Causes	26	50.2
5-14 Years	1. Accidents and Adverse Effects	9	6.2
	2. Homicide and Legal Intervention	7	4.8
	3. Malignant Neoplasms	5	3.5
	4. Diseases of the Heart	2	1.4
	5. Chronic Obstructive Pulmonary Diseases and Allied Conditions	1	0.7
	All Causes	28	19.3
15-24 Years	1. Homicide and Legal Intervention	43	29.8
	2. Accidents and Adverse Effects	19	13.2
	3. Diseases of the Heart	8	5.5
	4. Cerebrovascular Diseases	6	4.2
	5. Malignant Neoplasms	5	3.5
	All Causes	126	87.2
25-34 Years	1. Homicide and Legal Intervention	52	40.7
	2. Diseases of the Heart	21	16.4
	3. Chronic Liver Disease and Cirrhosis	19	14.9
	4. Accidents and Adverse Effects	17	13.3
	5. Malignant Neoplasms	14	11.0
	All Causes	227	177.7

Table 2.8
Leading Causes of Death and Cause-Specific Rates by Age, Sex, and Race, Michigan Residents, 1980 (cont.)

ALL OTHER FEMALES[2]

AGE	RANK AND CAUSE OF DEATH	NUMBER	SPECIFIC RATE
35-49 Years	1. Malignant Neoplasms	105	98.3
	2. Diseases of the Heart	85	79.6
	3. Chronic Liver Disease and Cirrhosis	38	35.6
	4. Cerebrovascular Diseases	26	24.3
	5. Homicide and Legal Intervention	20	18.7
	All Causes	400	374.5
50-64 Years	1. Diseases of the Heart	309	369.0
	2. Malignant Neoplasms	299	357.1
	3. Cerebrovascular Diseases	73	87.2
	4. Chronic Liver Disease and Cirrhosis	53	63.3
	5. Diabetes Mellitus	37	44.2
	All Causes	947	1,131.0
65 and Over	1. Diseases of the Heart	1,000	1,940.4
	2. Malignant Neoplasms	363	704.4
	3. Cerebrovascular Diseases	292	566.6
	4. Diabetes Mellitus	80	155.2
	5. Pneumonia and Influenza	60	116.4
	All Causes	2,157	4,185.4

DISEASES OF THE HEART

The leading cause of death, heart disease, caused the deaths of 29,790 Michigan residents in 1980. This is more than the number of deaths from the next five largest causes combined. The number of deaths from heart disease in 1980 was 494 more than in 1979. The crude rate of 321.6 deaths per 100,000 population from this cause is 1.5 percent above the revised rate of 316.7 in 1979.

The median age of persons who died from heart disease was 75 years, compared to a median of 72 years for deaths from all causes. Of the 29,790 deaths due to diseases of the heart, 54.2 percent were to males. The median age at death for males was 72 years compared to 79 years for females. The median age of 72 years for white males exceeded that for other than white males by 5 years. The median age at death for white females was 80 years, 8 years above that for other than white females (Table 2.9).

Table 2.10 presents death rates for diseases of the heart by age, race and sex. Note that the death rate associated with this cause rises markedly with advancing age. Heart disease was the underlying cause of death for 34 persons below 5 years of age or about 1.6 percent of all deaths in this age group. In contrast, 50.2 percent of all deaths in the age group 85 and over were attributed to this cause in 1980. The heart disease death rate was 8,036.4 among persons 85 years of age or older.

Examination of Table 2.10 reveals that the heart disease death rate for males was substantially higher than that for females in 1980 (357.2 as compared to 287.8 per 100,000 population). The relationship between rates for males and females is graphically displayed in Figure 2.6. The age-specific heart disease death rates for males and females were the same for the age group 1-14. Rates for males were above those of females in all other age groups. The greatest relative differentials occurred from age 35 through 64 with rates for males ranging from 2.6 to 3.2 times the corresponding rates for females. The gap between rates for males and females became progressively smaller after age 44. Among persons 85 years or over the rate of 9,163.5 for males was 21.7 percent above that for females (7,530.3). The age-adjusted death rate for males was 2.0 times that for females.

A comparison of 1980 heart disease death rates for males by race is graphically presented in Figure 2.7. Rates for other than white males were higher than those for white males between ages 1 and 64 and lower than rates for white males in all age intervals beyond age 64. The rate for white males across all ages was 374.6 compared to 256.5 for other than white males. This differential stems from the

TABLE 2.9
DEATHS DUE TO DISEASES OF THE HEART BY AGE, RACE, AND SEX <1>, MICHIGAN RESIDENTS, 1980

AGE IN YEARS	ALL RACES			WHITE			ALL OTHER			RACE NOT STATED		
	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE
UNDER 1	20	13	7	14	11	3	6	2	4	-	-	-
1-4	14	8	6	8	4	4	6	4	2	-	-	-
5-9	5	1	4	4	1	3	1	-	1	-	-	-
10-14	8	5	3	5	3	2	3	2	1	-	-	-
15-19	22	15	7	17	13	4	5	2	3	-	-	-
20-24	31	24	7	18	16	2	13	8	5	-	-	-
25-29	46	28	18	27	20	7	18	7	11	1	1	-
30-34	82	49	33	57	34	23	25	15	10	-	-	-
35-39	169	126	43	115	94	21	54	32	22	-	-	-
40-44	296	225	71	230	177	53	66	48	18	-	-	-
45-49	622	472	150	485	381	104	135	90	45	2	1	1
50-54	1145	848	297	948	723	225	193	122	71	4	3	1
55-59	1913	1382	531	1619	1193	426	291	187	104	3	2	1
60-64	2608	1792	816	2245	1565	680	354	220	134	9	7	2
65-69	3343	2134	1209	2954	1923	1031	382	206	176	7	5	2
70-74	3915	2323	1592	3490	2097	1393	418	220	198	7	6	1
75-79	4482	2386	2096	4042	2159	1883	430	220	210	10	7	3
80-84	4507	1983	2524	4155	1825	2330	344	154	190	8	4	4
85-89	3786	1468	2317	3553	1363	2189	227	103	124	6	2	4
90+	2776	850	1926	2614	791	1823	161	59	102	1	-	1
NOT STATED	-	-	-	-	-	-	-	-	-	-	-	-
ALL AGES	29790	16132	13657	26600	14393	12206	3132	1701	1431	58	38	20
MEDIAN AGE AT LAST BIRTHDAY	75	72	79	76	72	80	70	67	72	72	69	*

<1> THE DEATH OF ONE WHITE PERSON WITH SEX NOT STATED IS INCLUDED ONLY IN THE TOTAL COLUMNS.

TABLE 2.10
HEART DISEASE DEATH RATES BY AGE, RACE, AND SEX <1>, MICHIGAN RESIDENTS, 1980

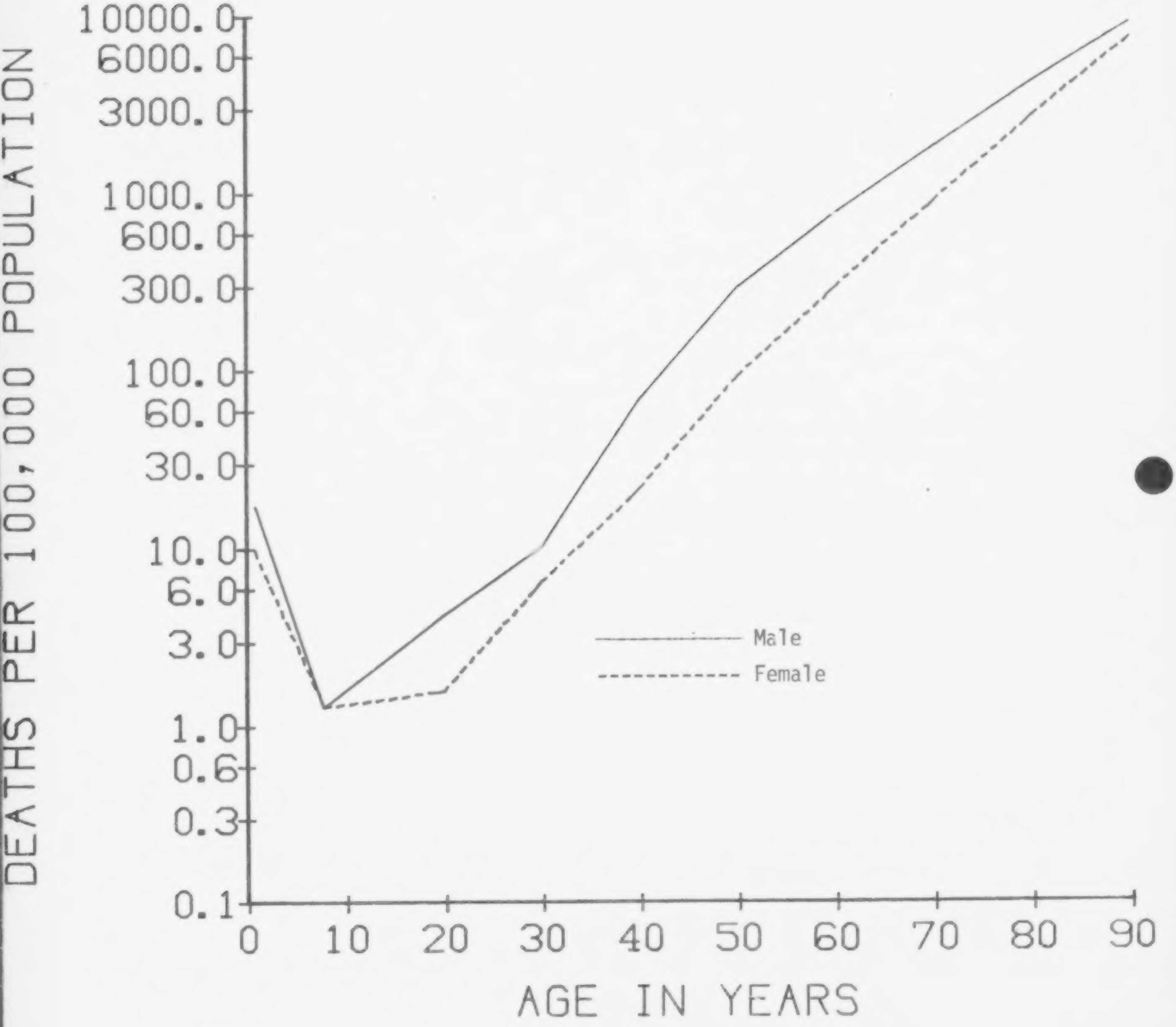
AGE	ALL RACES			WHITE			OTHER THAN WHITE		
	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE
ALL AGES-CRUDE RATE	321.6	357.2	287.8	338.6	374.6	304.0	225.8	256.5	197.6
UNDER 1 YEAR	13.7	17.4	9.8	11.9	18.2	*	21.2	*	*
1-14 YEARS	1.3	1.3	1.3	1.0	.9	1.1	2.5	3.0	*
15-24 YEARS	3.0	4.3	1.6	2.3	3.8	.8	6.4	7.4	5.5
25-34 YEARS	8.4	10.3	6.6	6.7	8.6	4.7	18.1	20.0	16.4
35-44 YEARS	45.2	69.5	21.7	38.8	61.7	16.5	85.2	121.6	53.3
45-54 YEARS	189.8	292.0	93.3	176.9	278.6	79.5	278.6	389.0	183.7
55-64 YEARS	522.8	775.0	295.9	505.1	760.9	274.6	661.3	886.8	461.2
65-74 YEARS	1304.2	1822.0	898.1	1298.7	1846.5	870.1	1350.3	1619.3	1134.9
75-84 YEARS	3279.5	4214.7	2710.7	3292.7	4270.5	2706.1	3146.0	3698.2	2760.5
85 AND OVER	8036.4	9163.5	7530.3	8174.9	9269.5	7687.0	6334.5	7959.0	5521.6
AGE-ADJUSTED RATE<2>	214.9	295.5	150.6	210.9	293.7	145.0	239.9	303.6	188.4

<1> DEATHS WITH SEX OR RACE NOT STATED WERE RANDOMLY ALLOCATED PRIOR TO COMPUTATION OF AGE-SPECIFIC DEATH RATES. DEATHS WITH AGE NOT STATED WERE INCLUDED IN THE CATEGORY 85 AND OVER.

<2> BASED ON AGE-SPECIFIC DEATH RATES PER 100,000 POPULATION IN SPECIFIED GROUP. COMPUTED BY THE DIRECT METHOD, USING AS THE STANDARD POPULATION THE AGE DISTRIBUTION OF THE TOTAL POPULATION OF THE UNITED STATES AS ENUMERATED IN 1940; SEE TECHNICAL NOTES.

* RATE IS CONSIDERED STATISTICALLY UNRELIABLE.

FIGURE 2.6 - Age-Specific Heart Disease Death Rates[1] by Sex, Michigan Residents, 1980



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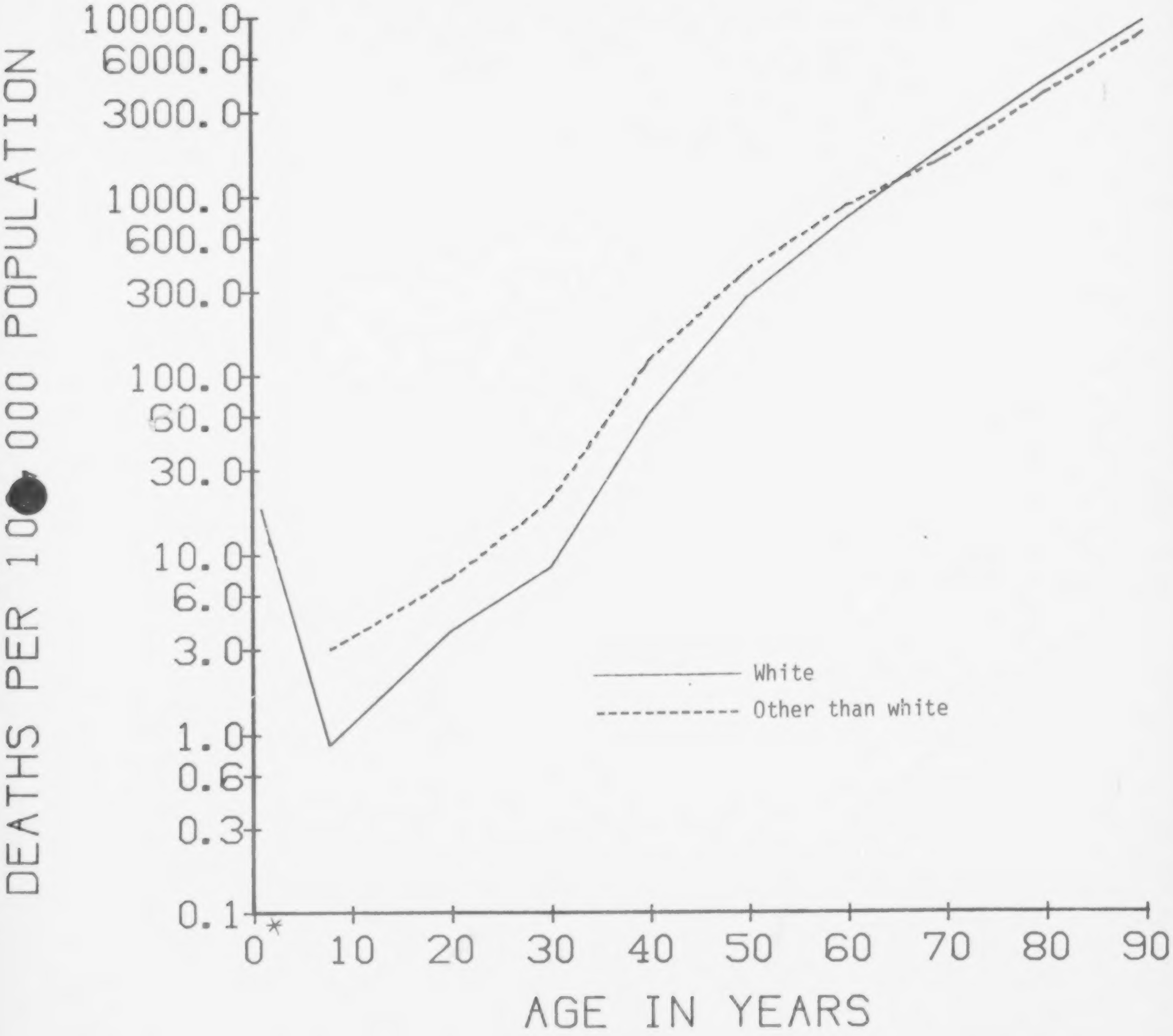
[1] Note that death rates are shown on a logarithmic scale: vertical distances represent relative differences in rate rather than absolute differences.

FIGURE 2.7 - Age-Specific Heart Disease Death Rates[1] by Race, Michigan Resident Males, 1980



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[1] Note that death rates are shown on a logarithmic scale: vertical distances represent relative differences in rate rather than absolute differences.

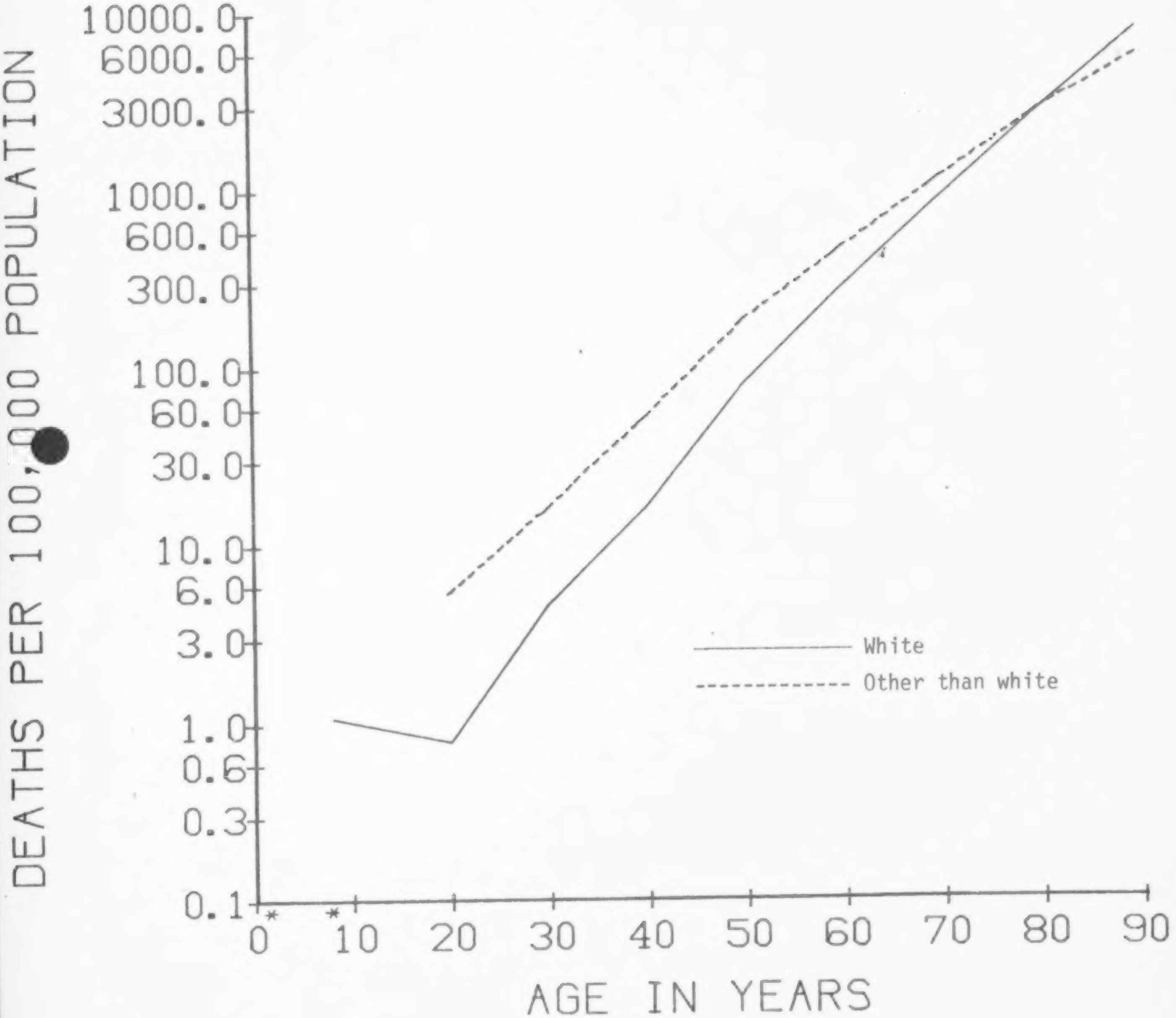
fact that a greater proportion of the white male population was in the older age groups where heart disease death rates were particularly high. The age-adjusted heart disease death rate for white males was 293.7 in 1980, 3.3 percent below the rate of 303.6 for other than white males.

Heart disease death rates for white and other than white females are displayed in Figure 2.8. Rates for other than white females were greater than those for white females between ages 15 and 84. The relative differentials steadily decreased with advancing age. Beyond age 84 the rate for white females exceeded that for other than white females by 39.2 percent. Although the rate for white females of all ages (304.0) was substantially above the comparable rate for other than white females (197.6), this relationship is reversed when the differing age distributions of the two populations are considered. The age-adjusted rate for other than white females was 188.4 while that for white females was 145.0.

In 1900 the crude heart disease death rate in Michigan was 117.1, the lowest rate of this century. Heart disease death rates rose through the time period 1900-1950 and have remained relatively stable over the last thirty years. The highest rate observed during the century was 343.1 in 1965. The rate of 321.6 for 1980 was 6.3 percent below the peak rate observed in 1965. The rate for Michigan was consistently close to the national rate until 1947. Since that time the crude rate for Michigan has been well below that of the nation. In 1980, the rate for the nation was an estimated 343.0, 6.7 percent above the rate of death due to heart disease for Michigan (Figure 2.9).

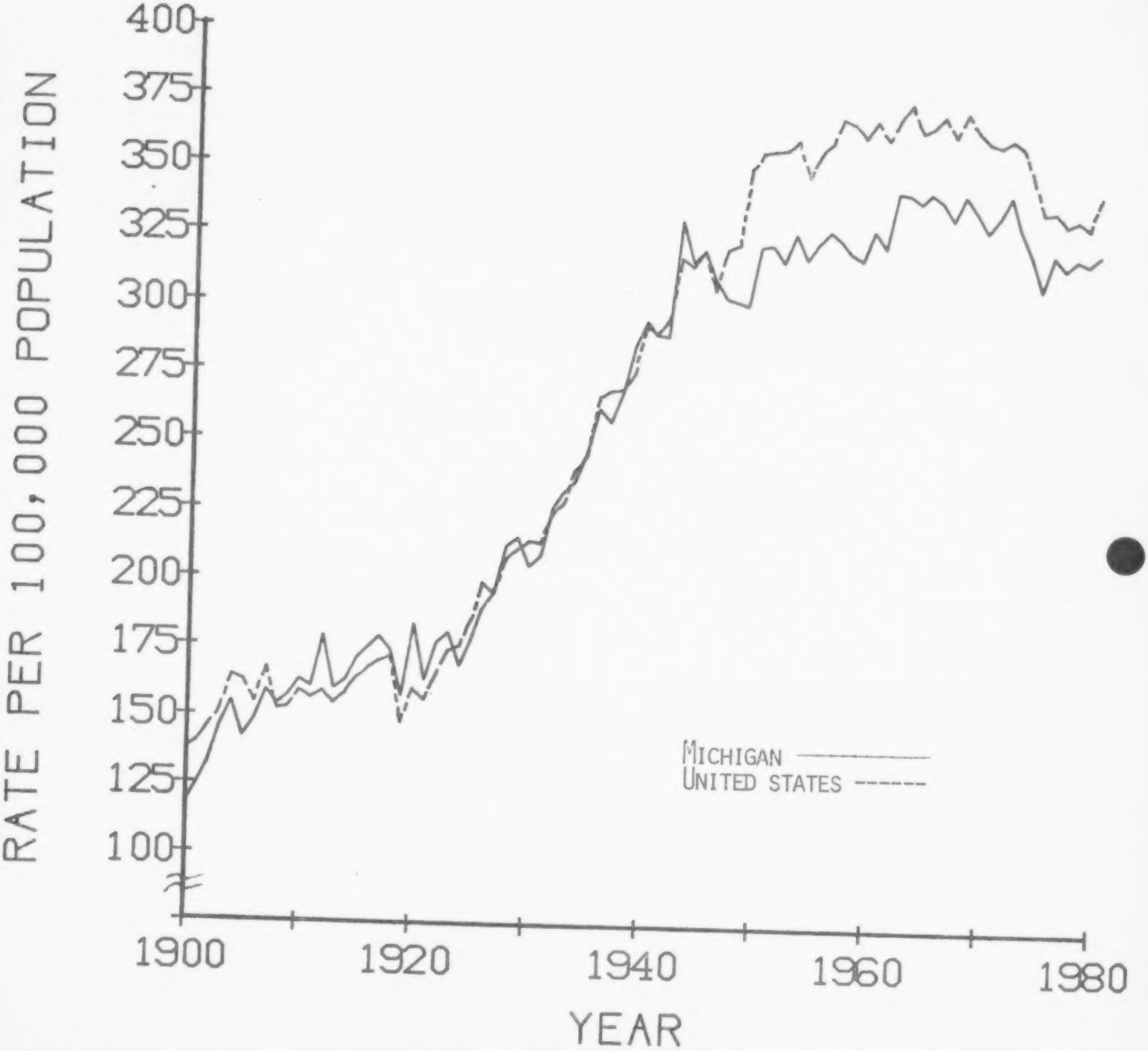
Age-adjusted death rates for diseases of the heart since 1970 are presented in Table 2.11. These data indicate a downward trend in heart disease death rates for the population as a whole and for each race-sex subgroup individually. Between 1970 and 1972 the rate for Michigan remained constant. Since 1972 the rate has declined each year, with the exception of 1976. The age-adjusted death rate for the nation declined each year between 1970 and 1979. The 1980 provisional rate for the United States exceeded by 1.1 percent the 1979 provisional rate. Age-adjusted rates for Michigan and the nation have declined by 17.5 percent and 19.0 percent, respectively, between 1970 and 1980. The age-adjusted rate for Michigan has been above that for the nation in each of the 11 years. In 1980 Michigan's rate was 4.7 percent above the provisional national rate. Age-adjusted rates for other than white females have been well above those for white females in both Michigan and the United States. In Michigan age-adjusted rates for other than white males have tended to be slightly below those for white males, while this relationship is reversed for the nation.

FIGURE 2.8 - Age-Specific Heart Disease Death Rates[1] by Race, Michigan Resident Females, 1980



[1]Note that death rates are shown on a logarithmic scale: vertical distances represent relative differences in rate rather than absolute differences

FIGURE 2.9 - HEART DISEASE DEATH RATES, MICHIGAN AND UNITED STATES RESIDENTS,[1] 1900-1980[2]



[1] National rates are from death registration states for 1900-1932 and the United States for 1933-1980. United States rates for 1979 and 1980 are provisional.

[2] Heart Disease death rates since 1900 are suitable for general comparison over time but detailed study (such as time series) requires special consideration. See Technical Notes.

Table 2.11

Age-Adjusted Heart Disease Death Rates[1] by Race and Sex, Michigan[2] and United States Residents, 1970-1980

Place	Year	All Races			White			Other Than White		
		Total	Male	Female	Total	Male	Female	Total	Male	Female
Mich.	1970	260.4	352.2	181.2	257.0	352.5	175.1	280.6	336.6	230.2
	1971	259.7	358.7	175.5	256.0	359.1	168.9	280.5	338.2	228.3
	1972	260.5	355.2	180.3	257.0	354.3	174.9	281.1	352.2	218.4
	1973	247.7	339.2	170.8	244.1	338.2	165.2	269.3	335.9	210.8
	1974	235.6	321.7	163.7	233.0	322.6	158.4	249.0	304.5	200.8
	1975	226.2	312.2	154.5	225.2	314.5	151.1	226.0	283.2	176.3
	1976	228.0	316.6	155.4	226.3	317.9	151.6	235.6	297.9	182.4
	1977	221.5	308.3	150.7	218.8	309.1	145.4	235.6	292.4	187.1
	1978	219.0	302.4	151.2	215.7	302.2	145.7	239.6	296.5	191.9
	1979	215.4	298.5	148.5	212.1	297.6	143.5	234.2	297.9	181.5
	1980	214.9	295.5	150.6	210.9	293.7	145.0	239.9	303.6	188.4
U.S.	1970	253.6	348.5	175.2	249.1	347.6	167.8	288.9	350.8	236.6
	1971	252.0	344.6	175.1	247.4	343.0	168.2	297.3	363.3	242.3
	1972	249.3	344.5	171.6	244.9	343.3	164.7	283.1	349.3	228.5
	1973	244.4	339.3	167.4	239.9	338.1	160.3	279.8	344.7	225.8
	1974	232.7	323.6	159.2	228.8	322.8	152.9	262.8	325.8	210.8
	1975	220.5	308.3	149.7	217.2	308.0	144.2	245.2	307.0	194.6
	1976	216.7	303.3	147.1	213.5	303.0	141.7	241.1	302.8	190.3
	1977	210.4	294.7	142.9	206.8	294.0	137.2	237.9	297.8	188.7
	1978	207.6	289.8	141.8	204.0	288.8	136.5	234.7	295.8	184.7
	1979	203.0[3]	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -
	1980	205.3[3]	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -

1 - Based on age-specific death rates per 100,000 population in specified group. Computed by the direct method, using as the standard population the age distribution of the total population of the United States as enumerated in 1940; see Technical Notes.

2 - Rates for Michigan for 1970-1979 have been revised; see Technical Notes.

3 - Provisional.

The most prevalent type of heart disease death is acute myocardial infarction (12,543 deaths in 1980), commonly referred to as a "coronary" (Table 2.12). Almost as frequent is old myocardial infarction and other forms of chronic ischemic heart disease. In 1980 there were 9,759 deaths attributed to this cause. Together, these causes accounted for 75 percent of all Michigan resident deaths from heart disease. Of the remaining 7,488 heart disease deaths, 73 percent were attributed to all other and ill-defined forms of heart disease (4,342 deaths) and heart failure (1,137 deaths).

The probability of eventually dying from heart disease, based on Michigan resident death data from 1978, 1979, and 1980 and population estimates for 1979, is 0.421 for males and 0.442 for females at birth. The chance associated with dying from heart disease increases steadily for both sexes with advancing age as certain competing causes of death become less likely. By age 85, the observed probability is 0.485 for males and 0.524 for females. At all ages the probability of death eventually being caused by heart disease is greater for females. These differentials by sex are smallest between ages 25 and 50. The higher probability for females reflects smaller chances of death due to some cause other than heart disease (Figure 2.10).

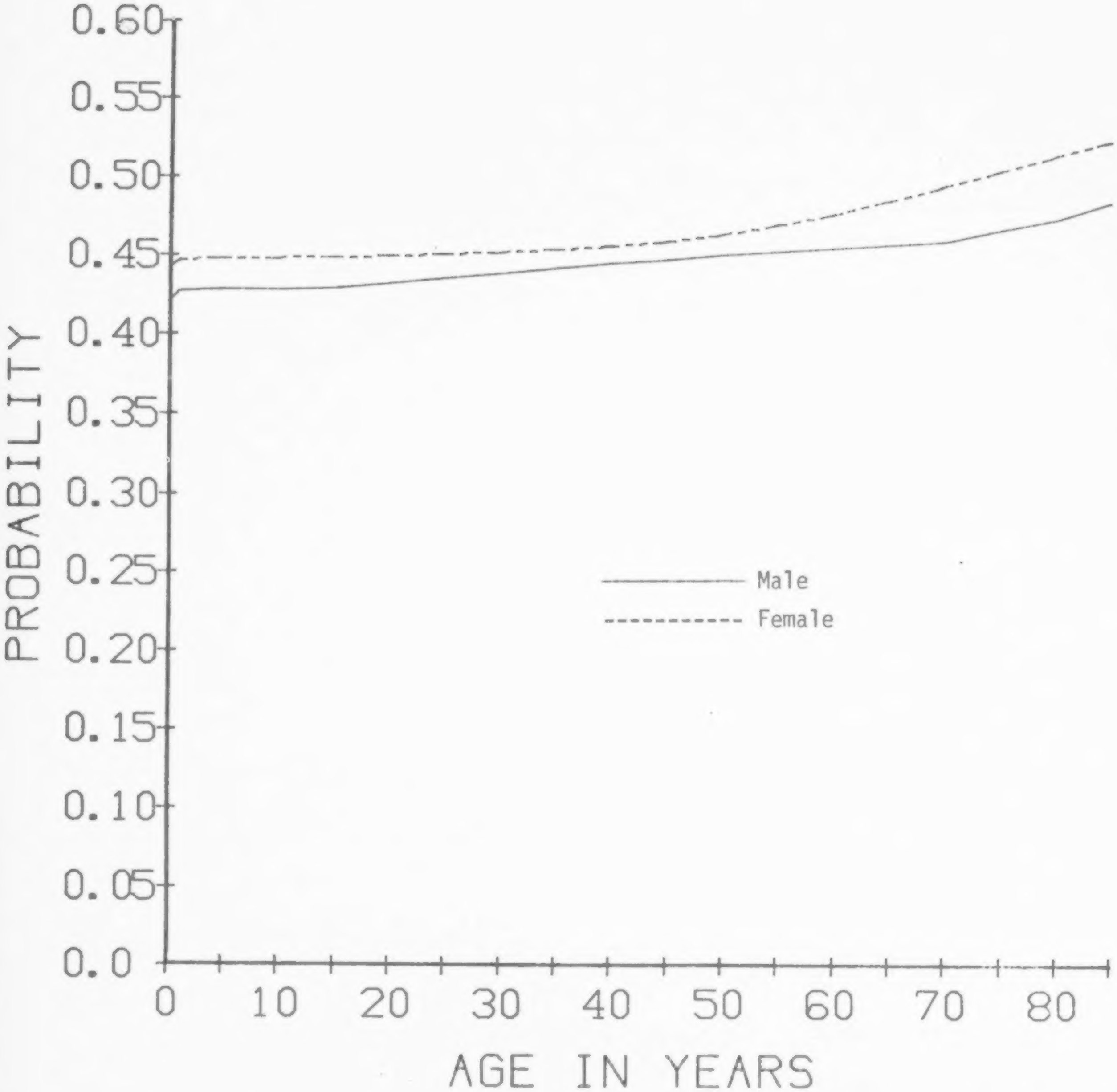
An apparent inconsistency can be noted by review of Figure 2.6 and Figure 2.10. The heart disease mortality rate for males is higher than that for females over nearly all ages, yet the chance of eventual death due to heart disease is slightly greater for females at all ages. This paradox is explained by a comparison of these two measures. The cause-specific mortality rate measures the proportion of a population that died from the particular cause over a certain period of time. The probability estimate takes into account the present age and cause-specific mortality rates and the life expectancy of the population. A greater proportion of all females now alive are expected to live into the older age intervals where they will be subject to the high heart disease mortality rates characteristic of those age groups. The effect of the longer female life span outweighs the effect of the higher mortality rate for males from heart disease.

Table 2.12
Deaths Due to Diseases of the Heart by Specific Cause, Michigan Residents, 1980

282 LIST[1] NUMBER	CAUSE OF DEATH	NUMBER OF DEATHS	PERCENT
136	Acute Myocardial Infarction	12,543	42.1
139	Old Myocardial Infarction and Other Forms of Chronic Ischemic Heart Disease	9,759	32.8
148	All Other and Ill-Defined Forms of Heart Disease	4,342	14.6
146	Heart Failure	1,137	3.8
133	Hypertensive Heart Disease	692	2.3
140	Diseases of Pulmonary Circulation	422	1.4
144	Aortic Valve Disorders	178	0.6
131	All Other Chronic Rheumatic Heart Disease	131	0.4
135	Hypertensive Heart and Renal Disease	110	0.4
147	Myocarditis, Unspecified and Myocardial Degeneration	102	0.3
128	Diseases of Mitral Valve	97	0.3
137	Other Acute and Subacute Forms of Ischemic Heart Disease	61	0.2
145	All Other Diseases of Endocardium	54	0.2
130	Diseases of Mitral and Aortic Valves	41	0.1
143	Mitral Valve Disorders	37	0.1
142	Acute Pericarditis, Acute Myocarditis, and Other Diseases of Pericardium	31	0.1
141	Acute and Subacute Endocarditis	21	0.1
129	Diseases of Aortic Valve	16	0.1
138	Angina Pectoris	14	0.0
127	Acute Rheumatic Fever	2	0.0
	TOTAL	29,790	100.0

[1] - List of 282 Selected Causes developed by the National Center for Health Statistics for tabulation of Mortality Data coded by the 9th Revision of the International Classification of Diseases, WHO.

FIGURE 2.10 - Probability of Eventually Dying from Heart Disease by Age and Sex, Michigan Residents, 1978-1980[1]



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[1] Note: Should comparisons be desired between this graph and a similar graph contained herein that pertains to some other specified cause of death, differences in scale may be encountered.

CANCER

Of 74,991 Michigan resident deaths in 1980, 15,828 were attributed to cancer. Although not the leading cause of death in Michigan or the United States, cancer affects all the human body's major systems and persons of all ages. The frequency of death due to cancer was 53 percent of the number of deaths due to heart disease across all ages, but the number of cancer deaths below age 55 was greater than the number of deaths due to heart disease below age 55. The median age at death for cancer was 68 years, well below the median age of 75 years for heart disease deaths (Table 2.13).

Of the 15,828 cancer deaths in 1980 occurring to Michigan residents, 55.0 percent were to males. The median age at death was 68 years for both white males and white females. The median ages at death for other than white persons who died of cancer were somewhat lower, 65 years for males and 62 years for females.

Cancer death rates by age, race and sex are presented in Table 2.14. The cancer death rate across all ages in 1980 was higher for males (192.6) than for females (150.2). The cancer death rates displayed in Figure 2.11 show a strong increase in mortality with advancing age. Mortality rates were similar for the sexes below age 15 and from age 25-34. In the 15-24 year age group the rate for males was 2.5 times the rate for females. Only in the age group of 35-44 years was the rate for females higher (21.9 percent) than that for males. After age 44 the rates for males were greater than those for females. Between ages 45 and 84 the relative differential increased steadily, from 9 percent in the 45-54 year age group to 101 percent in the age group 75-84 years. The age-adjusted cancer death rate for males was 53 percent above that for females.

Cancer death rates for white and other than white males recorded in Table 2.14 are graphically displayed in Figure 2.12. Rates for white males were higher below age 25. Rates for other than white males exceeded those for white males at all age groups between 25-84 years. The relative differentials increased steadily with advancing age, reached a peak of 57 percent in the age group 45-54, and thereafter declined. The cancer death rate for other than white males in the 85 years and over age group was 8 percent below the rate for white males. Although the crude death rate for other than white males was below the comparable rate for white males, the age-adjusted rate for other than white males was 28 percent higher than the age-adjusted rate for white males.

Cancer death rates for white females were above those for other than white females below age 35 and after age 64

TABLE 2.13
DEATHS DUE TO CANCER BY AGE, RACE, AND SEX, MICHIGAN RESIDENTS, 1980

AGE IN YEARS	ALL RACES			WHITE			ALL OTHER			RACE NOT STATED		
	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE
UNDER 1	5	4	1	5	4	1	-	-	-	-	-	-
1-4	26	15	11	23	13	10	3	2	1	-	-	-
5-9	24	11	13	22	10	12	2	1	1	-	-	-
10-14	35	19	16	27	15	12	8	4	4	-	-	-
15-19	40	28	12	34	24	10	6	4	2	-	-	-
20-24	73	53	20	62	45	17	10	7	3	1	1	-
25-29	95	53	42	81	44	37	14	9	5	-	-	-
30-34	101	45	56	83	36	47	18	9	9	-	-	-
35-39	182	76	106	153	61	92	29	15	14	-	-	-
40-44	330	150	180	267	126	141	63	24	39	-	-	-
45-49	561	279	282	455	226	229	105	53	52	1	-	1
50-54	1098	563	535	919	466	453	177	97	80	2	-	2
55-59	1653	931	722	1381	764	617	272	167	105	-	-	-
60-64	2129	1208	921	1835	1029	806	292	178	114	2	1	1
65-69	2345	1378	967	2047	1180	867	294	198	96	4	-	4
70-74	2365	1391	974	2127	1249	878	236	141	95	2	1	1
75-79	2007	1142	865	1810	1015	795	197	127	70	-	-	-
80-84	1460	766	694	1334	694	640	125	71	54	1	1	-
85-89	890	410	480	839	383	456	49	26	23	2	1	1
90+	409	176	233	365	157	208	43	18	25	1	1	-
NOT STATED	-	-	-	-	-	-	-	-	-	-	-	-
ALL AGES	15828	8698	7130	13869	7541	6328	1943	1151	792	16	6	10
MEDIAN AGE AT LAST BIRTHDAY	68	68	68	68	68	68	64	65	62	*	*	*

TABLE 2.14
CANCER DEATH RATES BY AGE, RACE, AND SEX <1>, MICHIGAN RESIDENTS, 1980

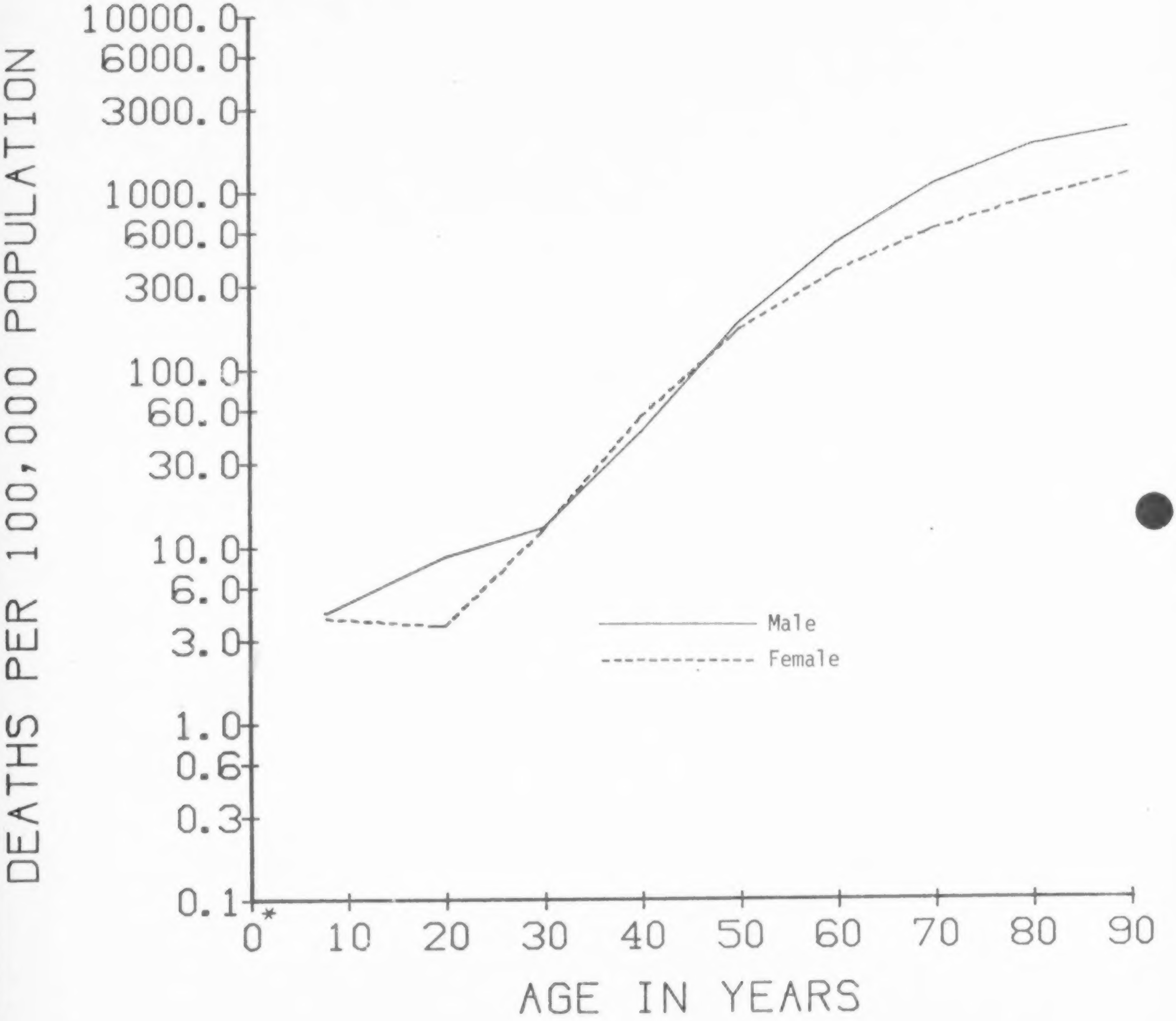
AGE	ALL RACES			WHITE			OTHER THAN WHITE		
	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE
ALL AGES-CRUDE RATE	170.9	192.6	150.2	176.4	196.0	157.6	139.9	173.2	109.5
UNDER 1 YEAR	3.4	*	*	4.2	*	*	*	*	*
1-14 YEARS	4.1	4.3	4.0	4.3	4.4	4.2	3.3	3.5	3.0
15-24 YEARS	6.3	9.0	3.6	6.4	9.2	3.6	5.7	8.1	3.5
25-34 YEARS	12.9	13.1	12.8	12.8	12.5	13.1	13.5	16.4	11.0
35-44 YEARS	49.8	44.8	54.6	47.3	42.6	51.9	65.3	59.3	70.6
45-54 YEARS	178.2	186.3	170.6	169.4	174	164.7	238.9	273.9	208.9
55-64 YEARS	437.3	522.3	360.9	419.5	493.5	352.7	577.5	749.8	424.5
65-74 YEARS	846.3	1132.0	622.3	840.7	1113.4	627.4	893.4	1285.6	579.6
75-84 YEARS	1264.9	1840.6	914.7	1260.6	1827.9	920.2	1308.8	1957.9	855.8
85 AND OVER	1590.9	2315.6	1265.4	1598.4	2330.3	1272.7	1498.1	2148.4	1172.7
AGE-ADJUSTED RATE<2>	134.4	167.8	109.7	131.3	162.7	108.5	157.5	207.6	117.7

<1> DEATHS WITH SEX OR RACE NOT STATED WERE RANDOMLY ALLOCATED PRIOR TO COMPUTATION OF AGE-SPECIFIC DEATH RATES. DEATHS WITH AGE NOT STATED WERE INCLUDED IN THE CATEGORY 85 AND OVER.

<2> BASED ON AGE-SPECIFIC DEATH RATES PER 100,000 POPULATION IN SPECIFIED GROUP. COMPUTED BY THE DIRECT METHOD, USING AS THE STANDARD POPULATION THE AGE DISTRIBUTION OF THE TOTAL POPULATION OF THE UNITED STATES AS ENUMERATED IN 1940; SEE TECHNICAL NOTES.

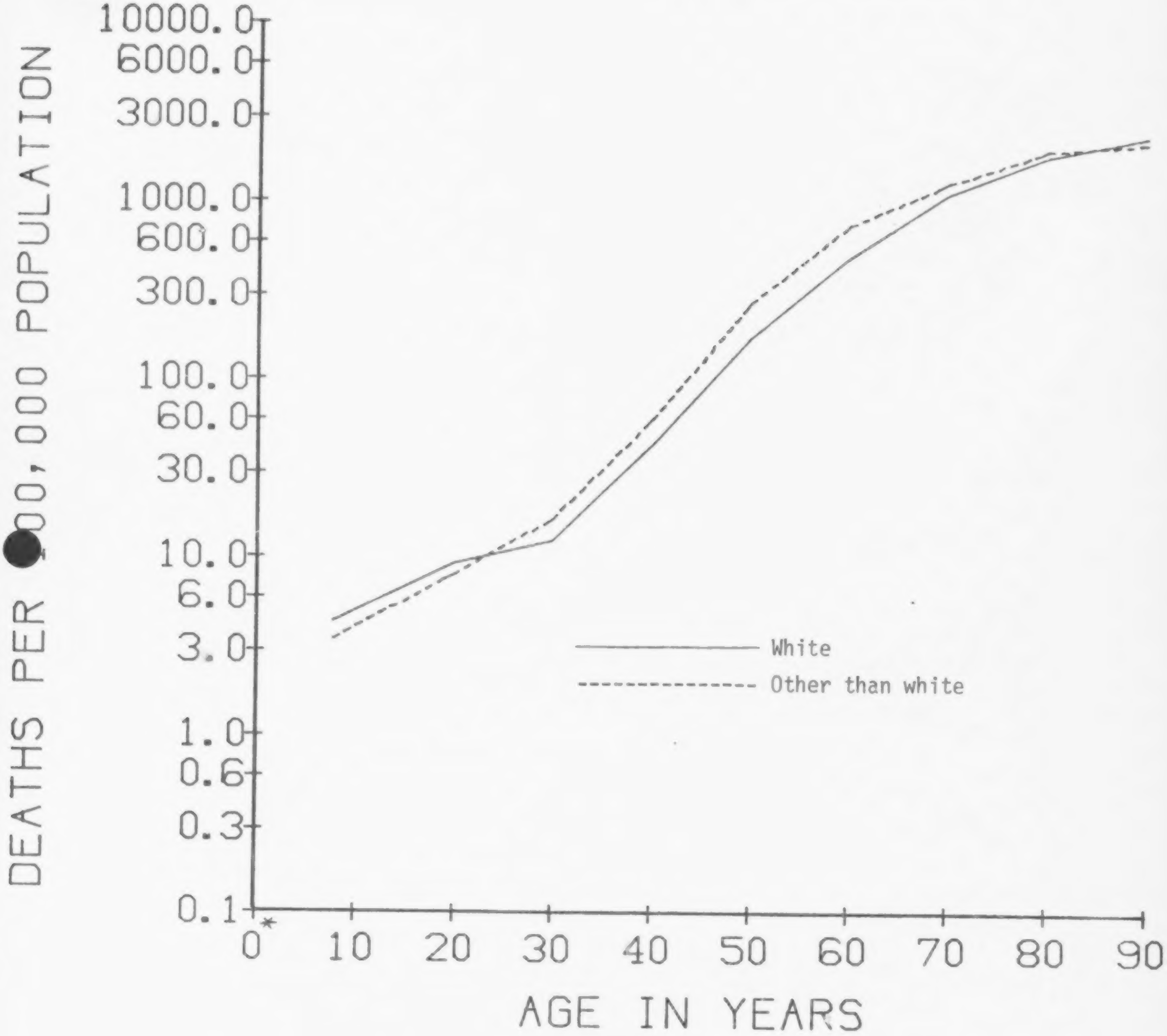
* RATE IS CONSIDERED STATISTICALLY UNRELIABLE.

FIGURE 2.11 - Age-Specific Cancer Death Rates[1] by Sex, Michigan Residents, 1980



[1] Note that death rates are shown on a logarithmic scale: vertical distances represent relative differences in rate rather than absolute differences

FIGURE 2.12 - Age-Specific Cancer Death Rates[1] by Race, Michigan Resident Males, 1980



[1] Note that death rates are shown on a logarithmic scale: vertical distances represent relative differences in rate rather than absolute differences

(Figure 2.13). Rates for other than white females were above the rates for white females from age 35 through 64. The crude rate for white females was 44 percent higher than the crude rate for other than white females. The age-adjusted rate for other than white females, however, was 8 percent greater than that for white females.

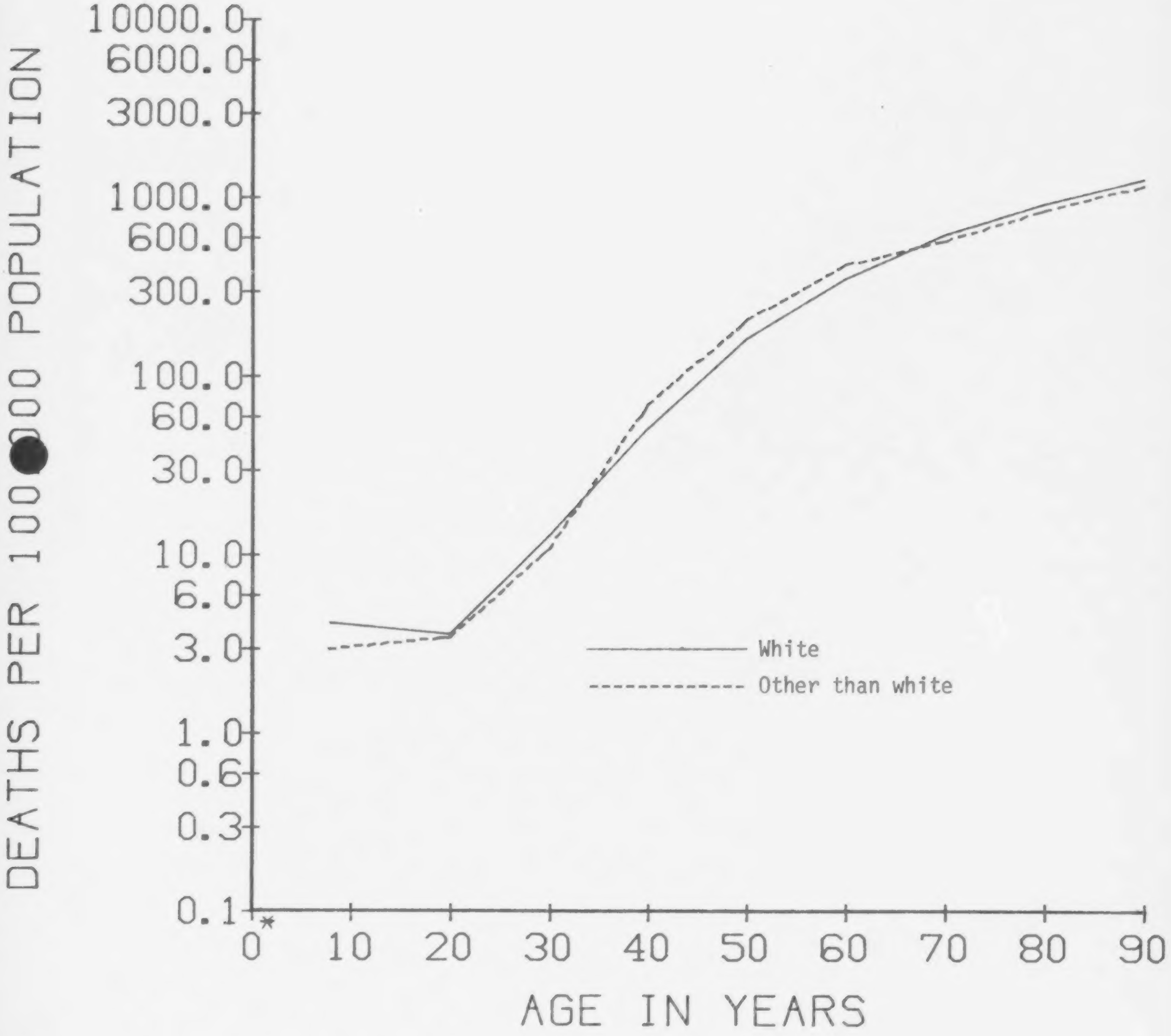
Among the major cause of death categories, cancer death rates have increased most persistently during the 20th century (Figure 2.14). The rate increased for the sixth consecutive year in 1980 to 170.9, the highest observed in this century. The 1980 rate surpassed by 2.6 percent the previous high rate of 166.6 (revised) in 1979. The lowest observed rate for Michigan was 59.3 in 1902. Michigan's cancer death rate was below the national rate from 1900 through 1915. During the period 1916 through 1947 Michigan's rate was generally close to the national rate. Since 1948, the state rate has been consistently below the national cancer death rate. Over the last fifteen years, the rate for the nation rose faster than did the rate observed in Michigan. The national cancer death rate in 1980 was an estimated 186.3. This is 9.0 percent above the state rate.

Age-adjusted cancer death rates for the years since 1970 presented in Table 2.15 show a much closer relationship between Michigan and United States mortality patterns than that indicated by crude mortality rates. Michigan's 1970 age-adjusted rate for the total population was 3.7 percent higher than the comparable U.S. rate. Since 1970, Michigan's age-adjusted cancer death rate has remained quite stable while the U.S. rate increased moderately. Michigan's 1980 age-adjusted cancer death rate of 134.4 is about the same as the provisional figure of 134.2 for the United States.

Table 2.15 contains a comparison of age-adjusted cancer death rates for white males, white females, other than white males and other than white females. The rates for the other than white groups were consistently higher than those for their white counterparts. Rates for white males and other than white males have increased nationally while the rates in Michigan for these groups have remained quite stable. Age-adjusted rates for white and other than white females were essentially stable both in Michigan and the nation.

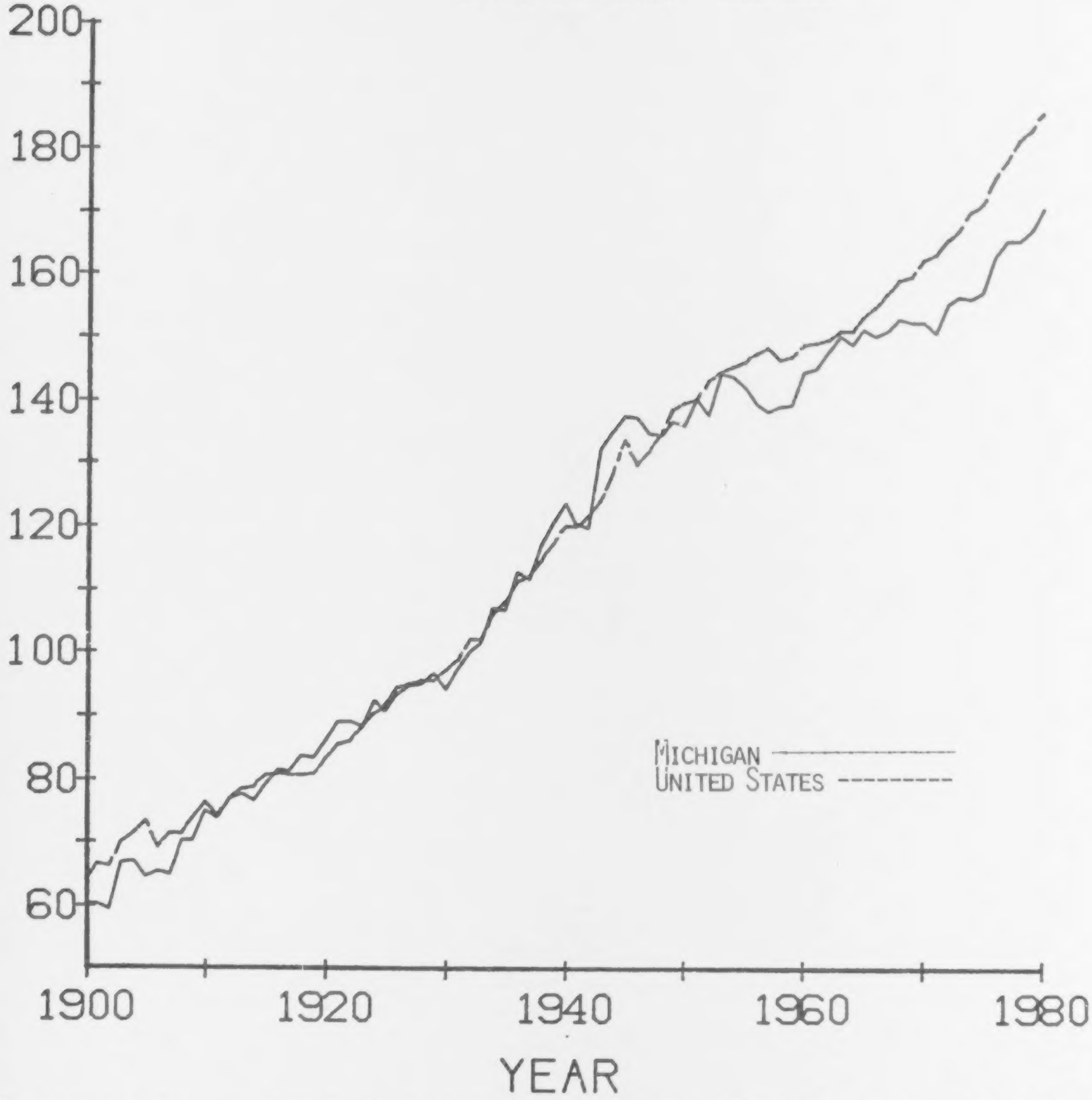
The numbers of deaths from cancer for 50 different sites are presented in Table 2.16. Malignant neoplasms of the trachea, bronchus, and lung were the underlying cause of 3,966 deaths, 25.1 percent of all cancer deaths. The second most frequent category of cancer mortality was cancer of other and unspecified parts of the colon (1,441). The total number of deaths attributed to colon cancer was 1,663. Breast cancer caused the death of 1,343 females and was the

FIGURE 2.13 - Age-Specific Cancer Death Rates[1] by Race, Michigan Resident Females, 1980



[1] Note that death rates are shown on a logarithmic scale: vertical distances represent relative differences in rate rather than absolute differences

FIGURE 2.14 CANCER DEATH RATES, MICHIGAN AND UNITED STATES RESIDENTS,[1] 1900-1980[2]



[1] National rates are from Death Registration States for 1900-1932 and the United States for 1933-1980. United States rates for 1979 and 1980 are provisional.

[2] Cancer death rates since 1900 are suitable for general comparison over time but detailed study (such as time series) requires special consideration. See Technical notes.

Table 2.15
Age-Adjusted Cancer Death Rates[1] by Race and Sex, Michigan[2] and United States Residents, 1970-1980

Place	Year	All Races			White			Other Than White		
		Total	Male	Female	Total	Male	Female	Total	Male	Female
Mich.	1970	134.7	164.7	110.1	131.9	160.2	109.1	159.4	206.6	117.1
	1971	131.6	159.0	109.7	128.7	154.9	108.0	157.4	195.8	123.2
	1972	133.8	163.2	111.0	130.8	159.5	108.7	159.4	194.1	129.6
	1973	133.8	163.1	110.7	130.9	159.0	109.0	157.8	199.0	122.7
	1974	131.9	160.6	109.6	129.2	156.5	108.4	153.1	194.9	117.5
	1975	131.7	161.6	108.9	128.5	155.8	108.0	158.4	210.3	114.7
	1976	134.1	165.5	110.2	131.1	160.2	109.3	158.7	209.8	116.1
	1977	134.5	168.8	108.5	131.0	163.1	106.9	163.5	214.9	121.5
	1978	133.7	166.7	109.2	130.7	161.3	108.3	156.8	209.8	114.1
	1979	131.8	165.3	107.0	128.8	160.7	105.4	154.8	200.7	118.0
	1980	134.4	167.8	109.7	131.3	162.7	108.5	157.5	207.6	117.7
U.S.	1970	129.9	157.4	108.8	127.8	154.3	107.6	148.3	185.3	117.6
	1971	130.7	158.5	109.4	127.7	154.6	107.2	160.8	198.7	129.7
	1972	130.7	159.8	108.8	128.3	156.4	107.4	152.2	191.2	120.4
	1973	130.7	160.1	108.7	127.7	156.2	106.8	156.4	195.9	124.3
	1974	131.8	162.3	109.2	129.0	158.3	107.6	156.6	199.0	122.4
	1975	130.9	161.4	108.3	128.1	157.2	106.9	155.0	199.7	118.9
	1976	132.3	163.4	109.4	129.5	159.1	108.2	156.3	202.3	119.3
	1977	133.0	164.5	110.0	130.0	160.0	108.3	159.3	205.4	122.4
	1978	133.8	165.8	110.5	130.8	161.2	109.0	159.1	205.8	121.8
	1979	133.4[3]	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -
	1980	134.2[3]	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -

1 - Based on age-specific death rates per 100,000 population in specified group. Computed by the direct method, using as the standard population the age distribution of the total population of the United States as enumerated in 1940; see Technical Notes.

2 - Rates for Michigan for 1970-1979 have been revised; see Technical Notes.

3 - Provisional.

Table 2.16
Deaths Due to Malignant Neoplasms by Site Affected, Michigan Residents, 1980

282 LIST[1] NUMBER	CAUSE OF DEATH	NUMBER OF DEATHS	PERCENT
57	Malignant Neoplasms of Trachea, Bronchus, and Lung	3,966	25.1
48	Malignant Neoplasms of Other and Unspecified Colon	1,441	9.1
63	Malignant Neoplasms of Female Breast	1,343	8.5
78	Malignant Neoplasms of All Other and Unspecified Sites	1,155	7.3
69	Malignant Neoplasms of Prostate	917	5.8
54	Malignant Neoplasms of Pancreas	747	4.7
42	Malignant Neoplasms of Stomach	541	3.4
67	Malignant Neoplasms of Ovary and Other Uterine Adnexa	413	2.6
72	Malignant Neoplasms of Bladder	392	2.5
75	Malignant Neoplasms of Brain	383	2.4
49	Malignant Neoplasms of Rectum, Rectosigmoid Junction, and Anus	341	2.2
41	Malignant Neoplasms of Esophagus	307	1.9
73	Malignant Neoplasms of Kidney and Other and Unspecified Urinary Organs	300	1.9
81	Other Malignant Neoplasms of Lymphoid and Histiocytic Tissue	285	1.8
84	Myeloid Leukemia	282	1.8
66	Malignant Neoplasms of Other Parts of Uterus	252	1.6
82	Multiple Myeloma and Immunoproliferative Neoplasms	233	1.5
79	Lymphosarcoma and Reticulosarcoma	198	1.3
83	Lymphoid Leukemia	183	1.2
86	Other and Unspecified Leukemia	182	1.0
53	Malignant Neoplasms of Gallbladder and Extrahepatic Bile Ducts	179	1.1
61	Melanoma of Skin	164	1.0
65	Malignant Neoplasms of Cervix Uteri	157	1.0
39	Malignant Neoplasms of Pharynx	144	0.9
56	Malignant Neoplasms of Larynx	118	0.7
55	Malignant Neoplasms of Retroperitoneum, Peritoneum, and Other and Ill-Defined Sites within the Digestive Organs and Peritoneum	113	0.7
40	Malignant Neoplasms of Other and Ill-Defined Sites within Lip, Oral Cavity, and Pharynx	110	0.7
47	Malignant Neoplasms of Cecum, Appendix, and Ascending Colon	107	0.7
52	Malignant Neoplasms of Liver not Specified as Primary of Secondary	106	0.7
60	Malignant Neoplasms of Connective and Other Soft Tissue	99	0.6
46	Malignant Neoplasms of Sigmoid Colon	82	0.5
80	Hodgkin's Disease	82	0.5
50	Malignant Neoplasms of Liver, Primary	79	0.5
38	Malignant Neoplasms of Tongue	66	0.4
77	Malignant Neoplasms of Thyroid Gland and Other Endocrine Glands and Related Structures	57	0.4
59	Malignant Neoplasms of Bone and Articular Cartilage	56	0.4
62	Other Malignant Neoplasms of Skin	41	0.3

Table 2.16 (Cont.)
Deaths Due to Malignant Neoplasms by Site Affected, Michigan Residents, 1980

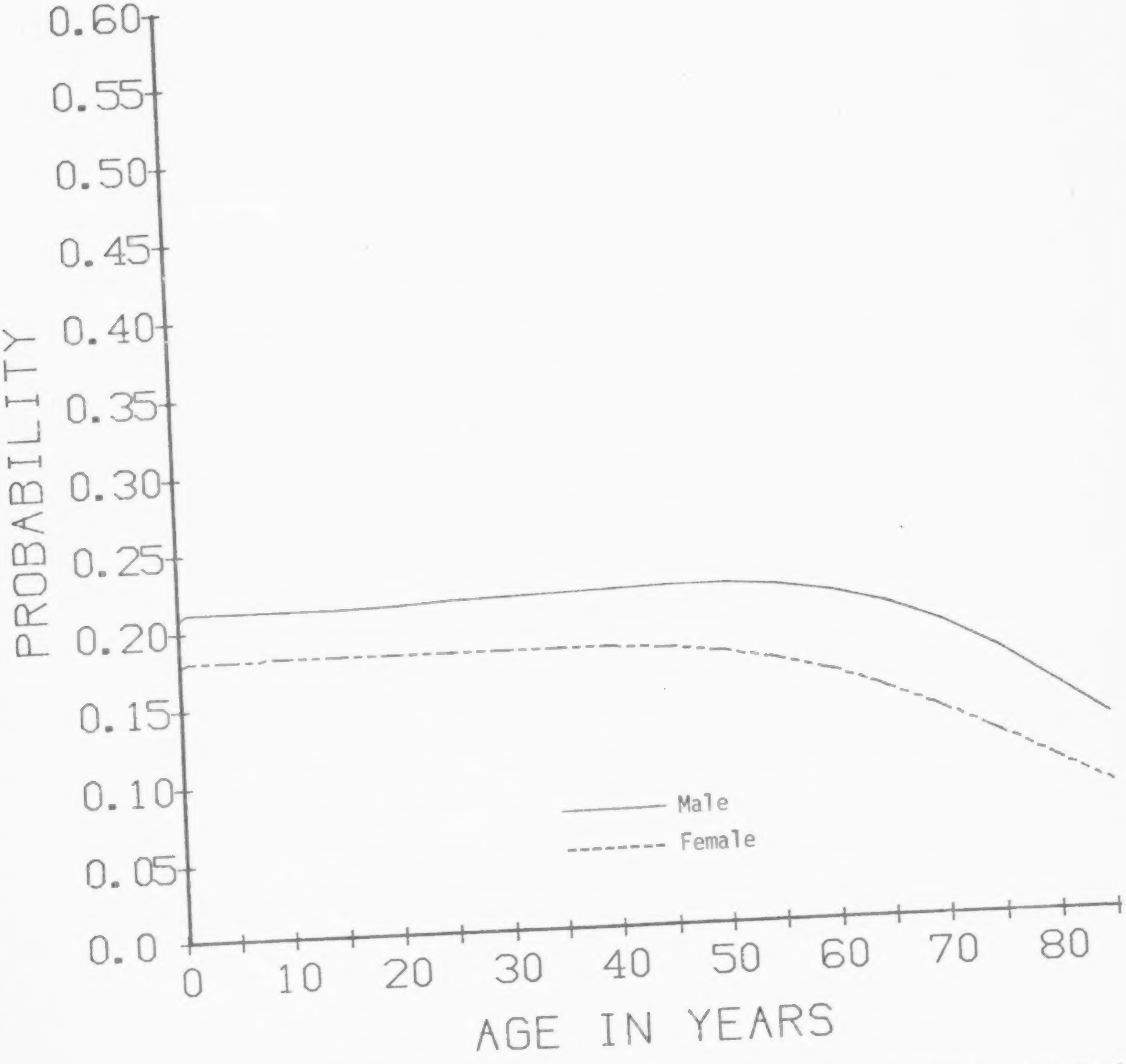
282 LIST[1] NUMBER	CAUSE OF DEATH	NUMBER OF DEATHS	PERCENT
58	Malignant Neoplasms of All Other and Ill-Defined Sites within the Respiratory System and Intrathoracic Organs	34	0.2
68	Malignant Neoplasms of Other and Unspecified Female Genital Organs	30	0.2
44	Malignant Neoplasms of Hepatic and Splenic Flexures and Transverse Colon	24	0.2
43	Malignant Neoplasms of Small Intestine, including Duodenum	23	0.1
70	Malignant Neoplasms of Testis	21	0.1
51	Malignant Neoplasms of Intrahepatic Bile Ducts	15	0.1
85	Monocytic Leukemia	13	0.1
64	Malignant Neoplasms of Male Breast	11	0.1
45	Malignant Neoplasms of Descending Colon	9	0.1
76	Malignant Neoplasms of Other and Unspecified Parts of Nervous System	9	0.1
71	Malignant Neoplasms of Penis and Other Male Genital Organs	9	0.1
74	Malignant Neoplasms of Eye	7	0.0
37	Malignant Neoplasms of Lip	2	0.0
	TOTAL	15,828	100.0

1 - List of 282 Selected Causes developed by the National Center for Health Statistics for tabulation of Mortality Data coded by the 9th Revision of the International Classification of Diseases, WHO.

third leading cause of cancer mortality. Malignant neoplasms of the prostate and the pancreas caused 917 and 747 deaths, respectively. There were 29 categories which had at least 100 deaths in 1980.

Based upon 1978 through 1980 death data, the probability of death due to cancer is 0.209 for males and 0.179 for females at birth (Figure 2.15). The probability of eventually dying from cancer is greater for males than for females at all ages. The probability for males rises slowly to a peak of 0.220 by age 45 then drops more rapidly to 0.126 at age 85. Probabilities for females display little change from birth to age 45, then diminish to 0.082 by age 85. This decreasing probability beyond age 45, noting the high cancer mortality rates of older age (Figure 2.11), indicates that age-specific death rates due to competing causes of death increase relatively faster with advancing age.

FIGURE 2.15 - Probability of Eventually Dying from Cancer by Age and Sex, Michigan Residents, 1978-1980[1]



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[1] Note: Should comparisons be desired between this graph and a similar graph contained herein that pertains to some other specified cause of death, differences in scale may be encountered.

CEREBROVASCULAR DISEASE

Deaths due to cerebrovascular disease (stroke) numbered 6,164 in 1980 or 8.2 percent of the 74,991 total Michigan resident deaths. This is 1.6 percent more stroke deaths than were observed in 1979 (6,067 deaths). Of the total in 1980, 57.6 percent were to females.

The median age at death from stroke was 79 years (Table 2.17). The median age for females was 81 years, 5 years higher than that for males. Deaths for white persons due to cerebrovascular disease displayed median ages several years higher than those for other than white persons. The median age was 69 years for other than white males and 77 years for white males. The median was 72 years for other than white females. This was 10 years less than that for white females (82 years).

The cerebrovascular disease death rate was 66.6 in 1980. The rate for females (74.8) was significantly higher than the rate for males (57.9). The age-specific death rates recorded in Table 2.18 and displayed in Figure 2.16 indicate that rates for males and females were similar below age 55. The rates for both sexes increased markedly in the older age groups. Rates for males were above those of females from age 55 through 84. Among persons 85 years of age or older the rate for females was above that for males. The crude death rate for females exceeded that for males because of the larger proportion of women in the high risk older age groups. The age-adjusted rate of 44.9 for males was 20.1 percent higher than the age-adjusted rate of 37.4 for females.

Cerebrovascular disease death rates by age and race from Table 2.18 are graphically displayed in Figures 2.17 and 2.18. Rates for other than white males and females were higher than comparable rates for white persons in all age groups below age 85 with sufficient events to calculate rates. The relative differentials progressively decreased in the older age groups. Rates for white persons were considerably higher than those for other than white persons beyond age 84. Although the crude rates for white males and females were, respectively, 13.1 percent and 37.3 percent higher than rates for other than white persons, age-adjusted rates indicate an opposite relationship. The cerebrovascular disease age-adjusted death rate for other than white males was 43.9 percent higher than that for white males, while for other than white females the age-adjusted rate was 52.7 percent higher than that for white females.

The historic pattern of cerebrovascular disease death rates has been one of strong variation (Figure 2.19). During the time period 1900-1949, the rates in Michigan ranged from a low of 83.9 in 1902 to a high of 110.0 eight

TABLE 2.17
DEATHS DUE TO CEREBROVASCULAR DISEASE BY AGE, RACE, AND SEX, MICHIGAN RESIDENTS, 1980

AGE IN YEARS	ALL RACES			WHITE			ALL OTHER			RACE NOT STATED		
	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE
UNDER 1	1	1	-	-	-	-	1	1	-	-	-	-
1-4	5	1	4	2	-	2	3	1	2	-	-	-
5-9	-	-	-	-	-	-	-	-	-	-	-	-
10-14	3	1	2	3	1	2	-	-	-	-	-	-
15-19	6	2	4	4	1	3	2	1	1	-	-	-
20-24	11	5	6	4	3	1	7	2	5	-	-	-
25-29	22	10	12	14	9	5	8	1	7	-	-	-
30-34	26	16	10	14	10	4	12	6	6	-	-	-
35-39	23	12	11	13	4	9	10	8	2	-	-	-
40-44	63	28	35	41	16	25	21	12	9	1	-	1
45-49	80	33	47	55	23	32	25	10	15	-	-	-
50-54	135	70	65	93	44	49	42	26	16	-	-	-
55-59	231	126	105	178	101	77	51	25	26	2	-	2
60-64	346	191	155	274	151	123	70	39	31	2	1	1
65-69	532	279	253	432	234	198	100	45	55	-	-	-
70-74	722	366	356	628	323	305	94	43	51	-	-	-
75-79	957	434	523	855	389	466	102	45	57	-	-	-
80-84	1191	494	697	1077	445	632	114	49	65	-	-	-
85-89	1070	345	725	1011	325	686	57	20	37	2	-	2
90+	740	200	540	699	187	512	39	12	27	2	1	1
NOT STATED	-	-	-	-	-	-	-	-	-	-	-	-
ALL AGES	6164	2614	3550	5397	2266	3131	758	346	412	9	2	7
MEDIAN AGE AT LAST BIRTHDAY	79	76	81	80	77	82	71	69	72	*	*	*

TABLE 2.18
CEREBROVASCULAR DISEASE DEATH RATES BY AGE, RACE, AND SEX <1>, MICHIGAN RESIDENTS, 1980

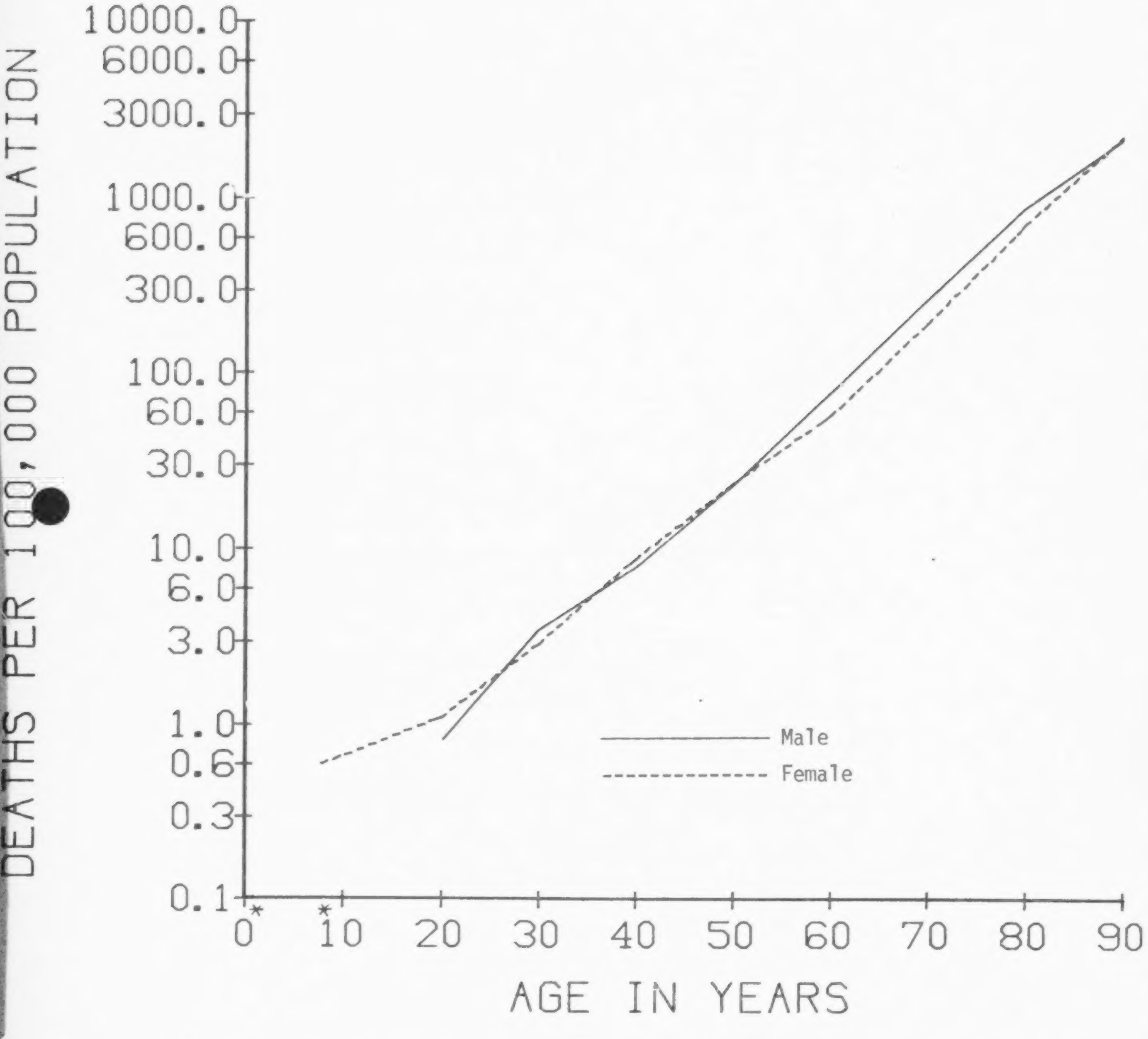
AGE	ALL RACES			WHITE			OTHER THAN WHITE		
	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE
ALL AGES-CRUDE RATE	66.6	57.9	74.8	68.7	58.9	78.0	54.5	52.1	56.8
UNDER 1 YEAR	*	*	*	*	*	*	*	*	*
1-14 YEARS	.4	*	.6	.3	*	*	*	*	*
15-24 YEARS	.9	.8	1.1	.5	*	*	3.2	*	4.2
25-34 YEARS	3.2	3.5	2.9	2.2	3.0	1.4	8.4	6.4	10.2
35-44 YEARS	8.4	7.9	8.8	6.2	4.6	7.8	22.0	30.4	14.7
45-54 YEARS	23.1	22.8	23.4	18.2	16.9	19.5	56.6	65.7	48.7
55-64 YEARS	66.7	77.4	57.1	59.5	69.6	50.3	123.7	139.1	110.0
65-74 YEARS	225.3	263.7	195.3	213.2	255.2	180.3	327.0	333.7	321.7
75-84 YEARS	783.7	895.2	715.8	774.4	891.5	704.1	877.9	929.5	842.0
85 AND OVER	2216.7	2153.6	2245.1	2269.8	2205.6	2298.4	1563.3	1562.5	1563.6
AGE-ADJUSTED RATE<2>	40.6	44.9	37.4	38.3	42.6	35.1	57.1	61.3	53.6

<1> DEATHS WITH SEX OR RACE NOT STATED WERE RANDOMLY ALLOCATED PRIOR TO COMPUTATION OF AGE-SPECIFIC DEATH RATES. DEATHS WITH AGE NOT STATED WERE INCLUDED IN THE CATEGORY 85 AND OVER.

<2> BASED ON AGE-SPECIFIC DEATH RATES PER 100,000 POPULATION IN SPECIFIED GROUP. COMPUTED BY THE DIRECT METHOD, USING AS THE STANDARD POPULATION THE AGE DISTRIBUTION OF THE TOTAL POPULATION OF THE UNITED STATES AS ENUMERATED IN 1940; SEE TECHNICAL NOTES.

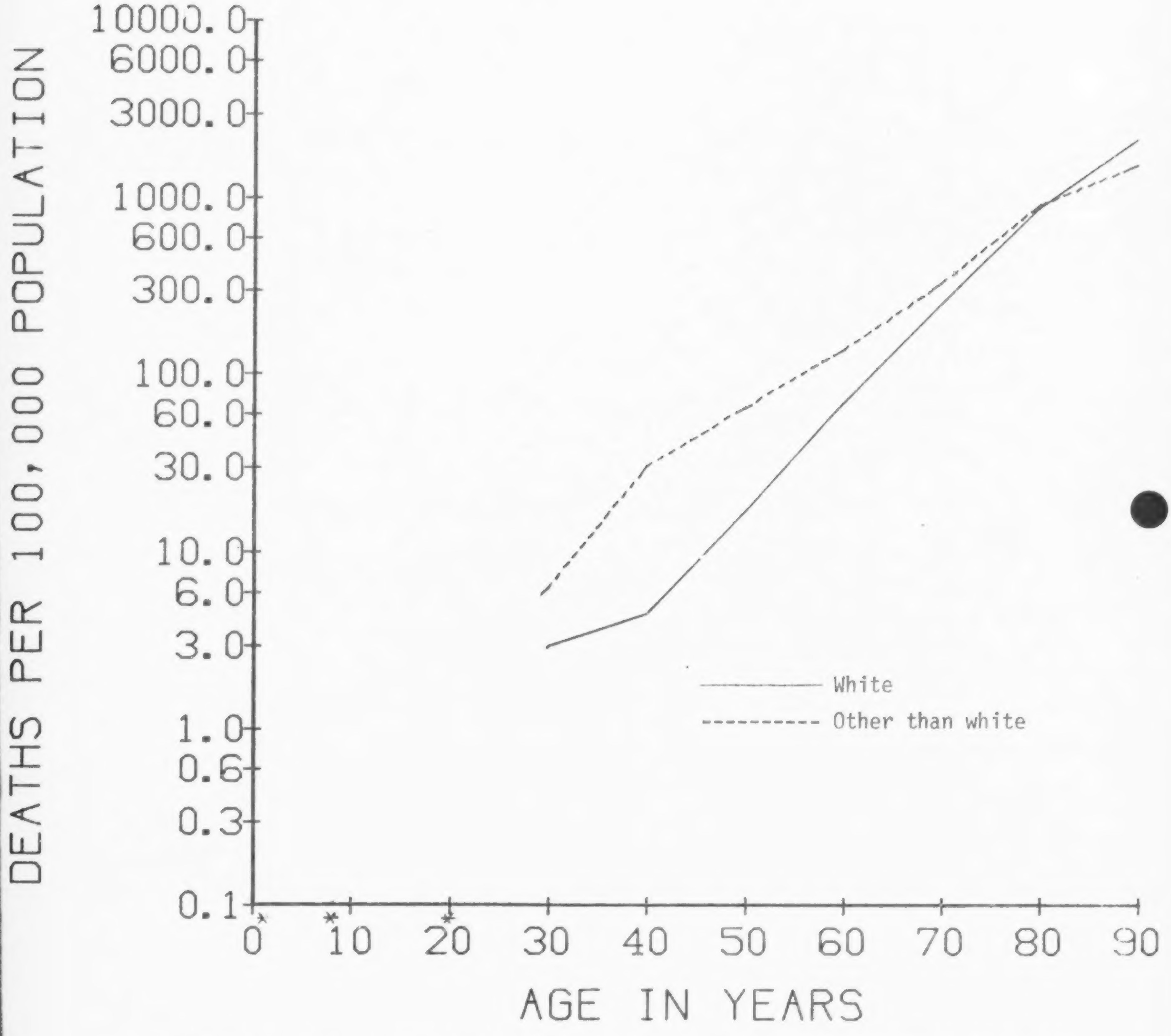
* RATE IS CONSIDERED STATISTICALLY UNRELIABLE.

FIGURE 2.16 - Age-Specific Cerebrovascular Disease Death Rates[1] by Sex, Michigan Residents, 1980



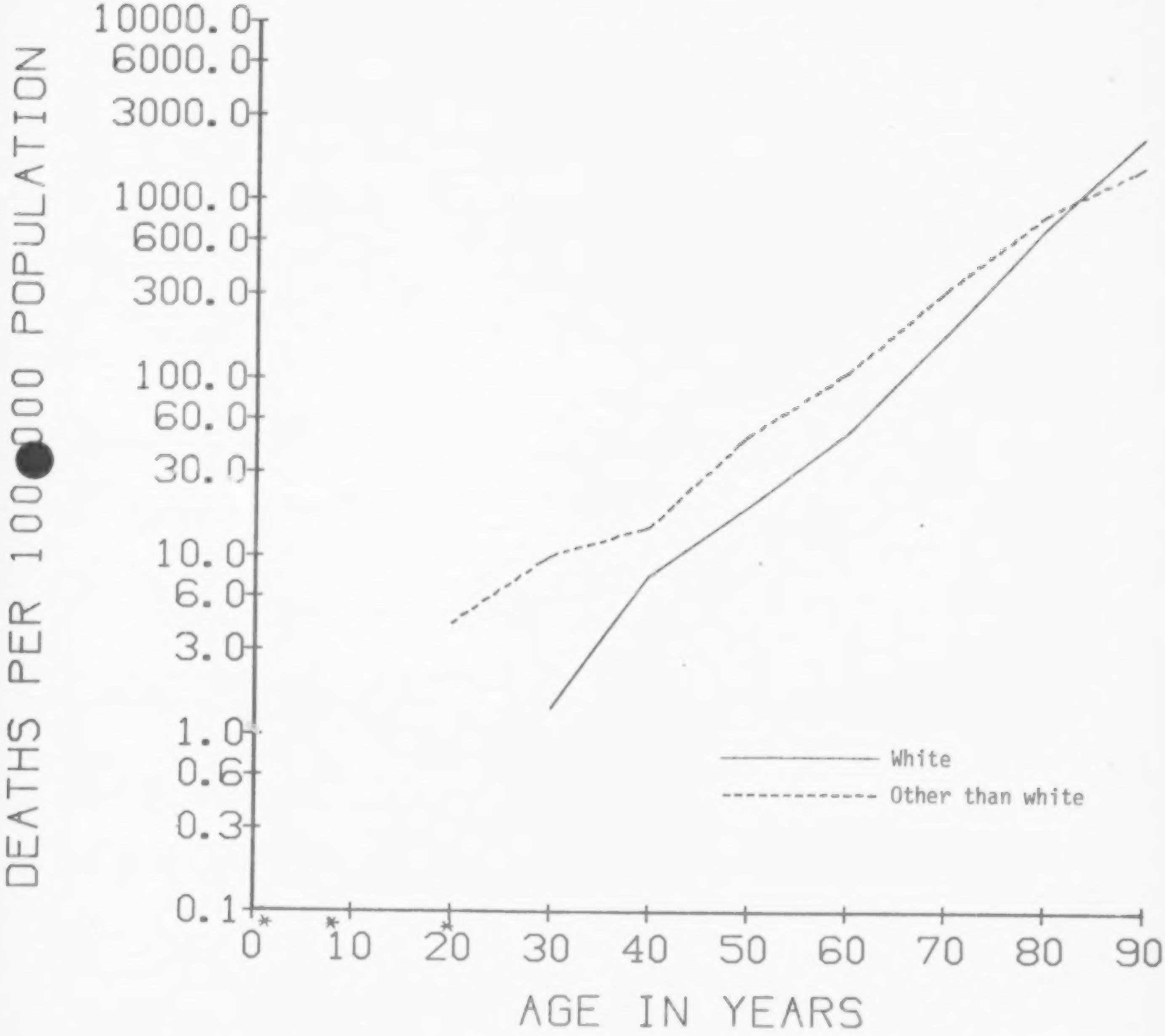
[1] Note that death rates are shown on a logarithmic scale: vertical distances represent relative differences in rate rather than absolute differences

FIGURE 2.17 - Age-Specific Cerebrovascular Disease Death Rates[1] by Race, Michigan Resident Males, 1980



[1] Note that death rates are shown on a logarithmic scale: vertical distances represent relative differences in rate rather than absolute differences

FIGURE 2.18 - Age-Specific Cerebrovascular Disease Death Rates[1] by Race, Michigan Resident Females, 1980



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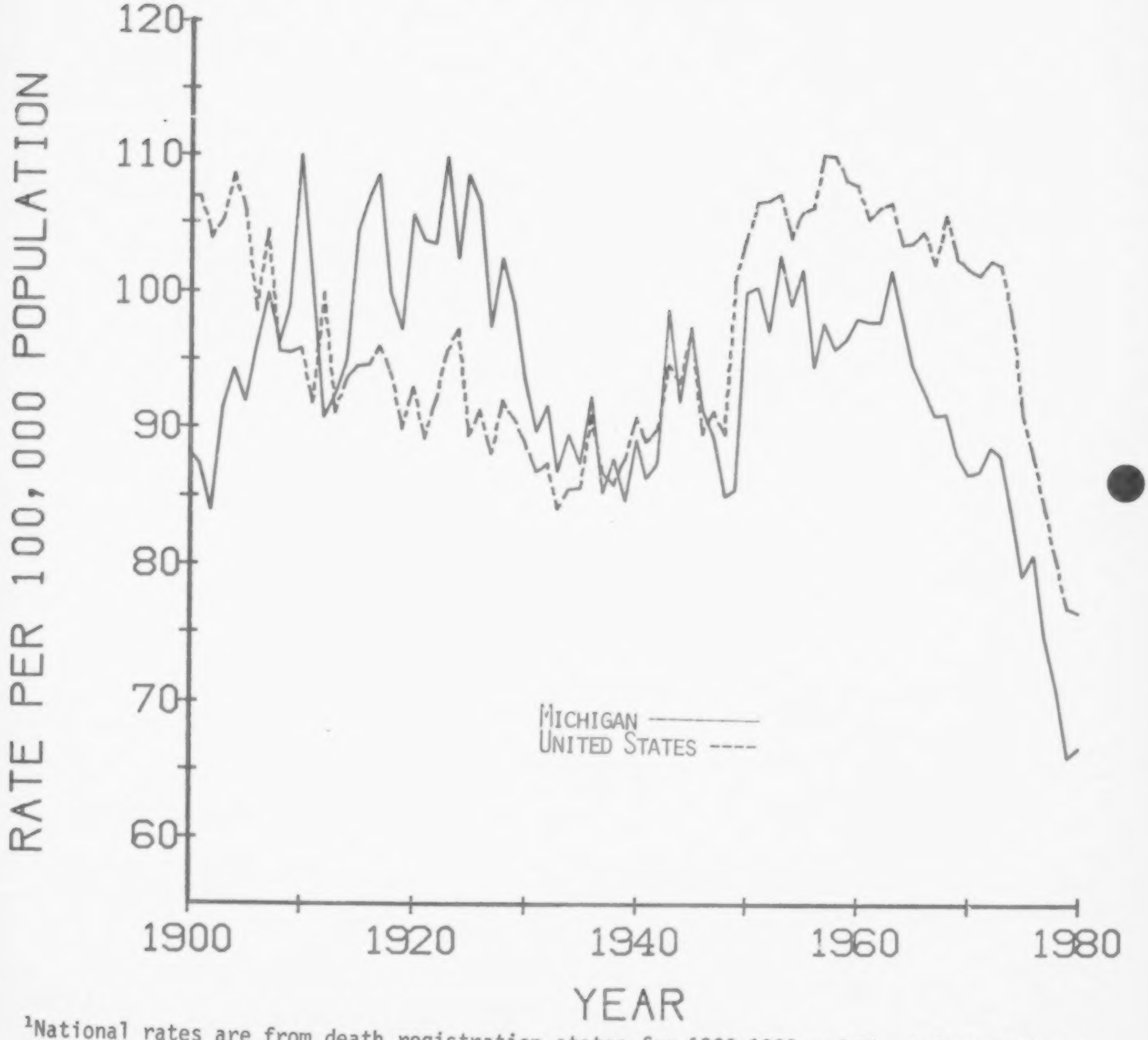
[1] Note that death rates are shown on a logarithmic scale: vertical distances represent relative differences in rate rather than absolute differences

FIGURE 2.19 - CEREBROVASCULAR DISEASE DEATH RATES, MICHIGAN AND UNITED STATES RESIDENTS,[1] 1900-1980[2]



[1] National rates are from death registration states for 1900-1932 and the United States for 1933-1980. United States rates for 1979 and 1980 are provisional.

[2] The comparability of cerebrovascular disease death rates from the 5th revision of ICDA coding procedures with those of the 6th revision is considered weak. The comparability ratio is estimated to be 1.16. The 6th revision was adopted in 1949 for national cause-of death statistics and in 1950 for Michigan Statistics. The comparability of cerebrovascular disease death rates through the 6th, 7th, 8th and 9th revisions (1949 to date nationally and 1950 to date in Michigan) is high.

years later. The national high and low rates for the years 1900-1948 were, respectively, 108.6 in 1904 and 84.1 in 1933. Rates for Michigan were below national rates from 1900 through 1907 but were generally, and sometimes markedly, higher from 1908 through 1938. Michigan and national rates were very similar over the next eight years, whereupon the Michigan rate slipped below the national rate and has so remained since 1947.

The 6th revision to ICD cause of death coding was adopted in the year 1949 nationally and in 1950 in Michigan. This revision resulted in a lack of direct comparability between cerebrovascular disease death rates prior to these dates and those after adoption. Since the significant change in coding procedures, the cerebrovascular disease death rate in Michigan has ranged from a high of 102.8 in 1953 to a low of 65.6 (revised) in 1979. Recent rates over the last seventeen years have shown a clear downward tendency both nationally and in Michigan. The rate of 66.6 for Michigan in 1980 was 34.5 percent below the rate of 1963. In 1980 the Michigan rate was 13.1 percent below the provisional United States rate of 76.6.

Age-adjusted rates for cerebrovascular disease deaths by race and sex are presented in Table 2.19. These rates have declined by approximately 40 percent since 1970 for each sex-race group in Michigan. Rates for other than white persons, however, remained substantially above rates for white persons throughout the period. Rates for the United States showed a similar pattern of decline. However, while Michigan and national rates were quite similar for white males and females, the state age-adjusted rates for other than white males and females were lower than comparable national rates.

Acute but ill-defined cerebrovascular disease was most frequently given as the type of cerebrovascular disease causing death (2,764 deaths). Second in frequency was cerebral thrombosis and unspecified occlusion of cerebral arteries which caused 1,513 deaths in 1980 (Table 2.20). These two cause of death categories comprised 69.4 percent of all stroke deaths. Intracerebral and other intracranial hemorrhage caused 724 stroke deaths.

Based upon the mortality experience of 1978 through 1980, at birth a Michigan male faces a 0.075 chance of dying from cerebrovascular disease while the probability for a female at birth is 0.121. For both sexes the probability of eventual death due to this cause increases steadily with advancing age. At all ages females are more likely to eventually die from this cause than are males (Figure 2.20). This results primarily from the higher risks from competing causes for males. At age 60 probabilities for males start rising appreciably, reaching 0.120 by age 85. Data for

Table 2.19

Age-Adjusted Cerebrovascular Disease Death Rates[1] by Race and Sex, Michigan[2] and United States Residents, 1970-1980

Place	Year	All Races			White			Other Than White		
		Total	Male	Female	Total	Male	Female	Total	Male	Female
Mich.	1970	64.7	70.8	59.9	61.5	67.9	56.5	93.9	95.4	92.2
	1971	63.7	72.5	56.7	61.0	70.5	53.5	86.3	88.5	84.4
	1972	63.3	69.5	58.2	60.7	66.7	55.6	83.8	90.7	77.3
	1973	61.4	67.4	56.4	59.0	65.1	54.0	79.7	84.5	75.7
	1974	57.8	64.7	52.2	55.6	62.6	50.1	73.0	79.9	66.8
	1975	53.9	60.1	49.0	52.2	58.1	47.7	65.6	74.9	57.7
	1976	53.1	58.0	49.3	51.3	56.4	47.4	65.4	69.7	61.7
	1977	48.4	54.0	44.0	46.6	52.1	42.3	62.1	69.5	56.4
	1978	45.2	49.3	42.0	43.1	47.5	39.7	60.3	61.3	59.0
	1979	40.9	46.3	36.8	38.8	44.2	34.7	56.3	61.5	51.8
	1980	40.6	44.9	37.4	38.3	42.6	35.1	57.1	61.3	53.6
U.S.	1970	66.3	73.2	60.8	61.8	68.8	56.2	107.0	113.5	101.4
	1971	65.7	72.5	60.2	61.5	68.4	56.1	108.1	115.9	101.7
	1972	65.0	72.7	59.1	61.0	68.8	54.9	101.3	107.8	96.0
	1973	63.7	70.4	58.5	59.6	66.3	54.5	99.7	106.7	93.8
	1974	59.9	66.5	54.9	56.4	63.0	51.4	90.9	98.3	84.7
	1975	54.5	60.6	49.8	51.3	57.4	46.8	82.0	89.3	76.1
	1976	51.4	56.8	47.3	48.5	53.7	44.5	77.6	84.6	72.0
	1977	48.2	53.5	44.2	45.3	50.5	41.5	73.4	79.8	68.0
	1978	45.3	49.8	41.8	42.5	46.8	39.3	69.3	76.5	63.4
	1979	42.5[3]	---	---	---	---	---	---	---	---
	1980	41.5[3]	---	---	---	---	---	---	---	---

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1 - Based on age-specific death rates per 100,000 population in specified group. Computed by the direct method, using as the standard population the age distribution of the total population of the United States as enumerated in 1940; see Technical Notes.

2 - Rates for Michigan for 1970-1979 have been revised; see Technical Notes.

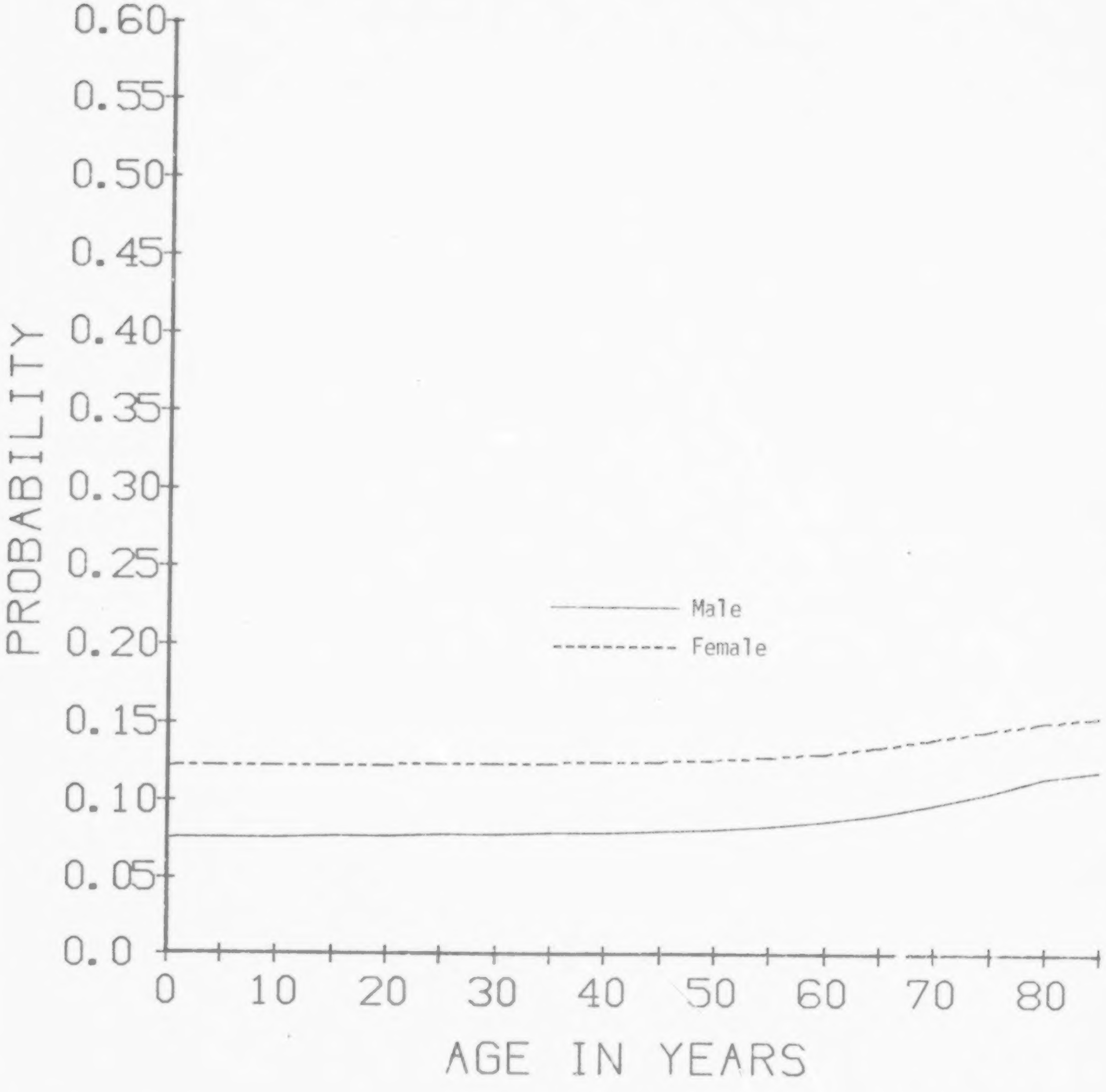
3 - Provisional.

Table 2.20
Deaths Due to Cerebrovascular Diseases by Specific Cause, Michigan Residents, 1980

282 LIST[1] NUMBER	CAUSE OF DEATH	NUMBER OF DEATHS	PERCENT
154	Acute but Ill-Defined Cerebrovascular Disease	2,764	44.8
152	Cerebral Thrombosis and Unspecified Occlusion of Cerebral Arteries	1,513	24.5
155	Other and Late Effects of Cerebrovascular Diseases	799	13.0
150	Intracerebral and Other Intracranial Hemorrhage	724	11.7
149	Subarachnoid Hemorrhage	256	4.2
151	Occlusion and Stenosis of Precerebral Arteries	72	1.2
153	Cerebral Embolism	36	0.6
	TOTAL	6,164	100.0

1 - List of 282 Selected Causes developed by the National Center for Health Statistics for tabulation of Mortality Data coded by the 9th Revision of the International Classification of Diseases, WHO.

FIGURE 2.20 - Probability of Eventually Dying from Cerebrovascular Disease by Age and Sex, Michigan Residents, 1978-1980[1]



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[1] Note: Should comparisons be desired between this graph and a similar graph contained herein that pertains to some other specified cause of death, differences in scale may be encountered.

females reveal a similar tendency, though the increase is somewhat less. The peak probability for females is 0.154 at age 85.

ACCIDENTS

About 4.8 percent of all Michigan resident deaths in 1980 were attributed to accidents. The total of 3,627 accidental deaths is 212 fewer than in 1979. The number of deaths from motor vehicle accidents was 1,880 in 1980, 87 fewer than in the previous year. In 1980 nearly seven tenths (69.1 percent) of the total accidental deaths were to males, and 69.3 percent of the deaths from motor vehicle accidents were to males.

The median age at death among accident victims was 32 years (Table 2.21). The median age among males was 31, eight years lower than the 39 year median for females. This differential is predominantly traceable to the relatively large number of accidental deaths of white males in the younger age intervals. The median age of accidental death for white males was 30 years compared to 35 years for other than white males. For white females who died from accidents the median of 40 years was 9 years higher than that for their other than white counterparts.

Accidental deaths among white males were especially concentrated in the 15-19 year and 20-24 year age ranges. These two age groups accounted for 30 percent of accidental deaths for white males compared to 21 percent or less for all other race/sex categories.

The crude death rate from accidents for males was 2.4 times that for females. Age-specific accident death rates for males were greater than those for females in all age groups. The differentials between rates for males and females were greatest between ages 15 and 54. In the 25-34 year age group, the rate for males was 3.6 times that for females. The age-adjusted death rate for males was 2.6 times that for females (Table 2.22).

Accident mortality rates by sex contained in Table 2.22 are displayed graphically in Figure 2.21. Although age-specific rates for males are generally much higher than those for females, the patterns of change are quite similar. Mortality rates for children between 1 and 14 years of age were somewhat lower than those for infants under one year. The rates then rose sharply for both sexes in the 15-24 year age group. From this initial peak the rates for both groups declined somewhat, remained fairly constant through age 54, and then increased continuously beyond that age.

Age-specific accident death rates for white and other than white persons are graphically displayed in Figures 2.22 and 2.23. Rates for white males were higher than those for other than white males only in the 15-24 year age group and in the 85 years of age and older age group. Rates for white females were higher than those for their other than white

TABLE 2.21

DEATHS DUE TO ACCIDENTS BY AGE, RACE, AND SEX, MICHIGAN RESIDENTS, 1980

AGE IN YEARS	ALL RACES			WHITE			ALL OTHER			RACE NOT STATED		
	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE
UNDER 1	39	20	19	29	16	13	9	4	5	1	-	1
1-4	130	74	56	95	51	44	33	22	11	2	1	1
5-9	119	71	48	100	59	41	18	11	7	1	1	-
10-14	123	76	47	103	59	44	17	15	2	3	2	1
15-19	427	316	111	394	290	104	28	21	7	5	5	-
20-24	484	368	116	442	341	101	38	26	12	4	1	3
25-29	328	253	75	280	214	66	46	37	9	2	2	-
30-34	239	188	51	199	156	43	39	31	8	1	1	-
35-39	195	150	45	156	119	37	36	30	6	3	1	2
40-44	150	104	46	119	82	37	30	21	9	1	1	-
45-49	168	121	47	146	102	44	19	16	3	3	3	-
50-54	145	110	35	113	83	30	31	26	5	1	1	-
55-59	171	123	48	141	97	44	27	23	4	3	3	-
60-64	172	113	59	150	98	52	21	14	7	1	1	-
65-69	131	96	35	102	72	30	27	23	4	2	1	1
70-74	119	73	46	99	61	38	17	10	7	3	2	1
75-79	131	79	52	121	70	51	10	9	1	-	-	-
80-84	147	68	79	138	62	76	9	6	3	-	-	-
85-89	127	69	58	120	64	56	6	4	2	1	1	-
90+	81	35	46	80	35	45	1	-	1	-	-	-
NOT STATED	1	1	-	1	1	-	-	-	-	-	-	-
ALL AGES	3627	2508	1119	3128	2132	996	462	349	113	37	27	10
MEDIAN AGE AT LAST BIRTHDAY	32	31	39	32	30	40	35	35	31	31	37	*

TABLE 2.22
ACCIDENT DEATH RATES BY AGE, RACE, AND SEX <1>, MICHIGAN RESIDENTS, 1980

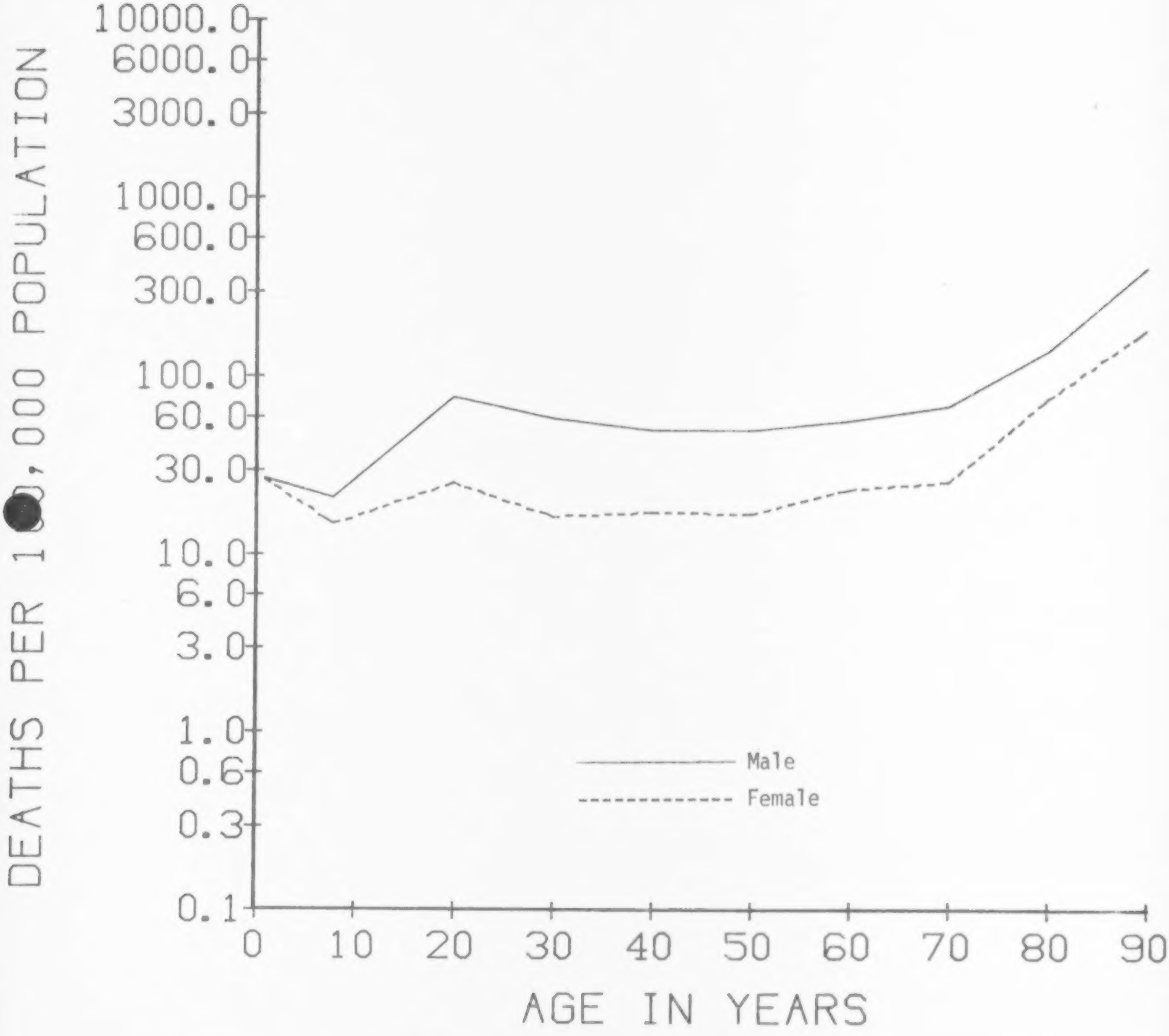
AGE	ALL RACES			WHITE			OTHER THAN WHITE		
	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE
ALL AGES-CRUDE RATE	39.2	55.5	23.6	40.1	55.9	25.0	33.8	53.4	15.9
UNDER 1 YEAR	26.7	26.8	26.5	25.5	26.5	24.3	31.8	*	35.4
1-14 YEARS	18.0	20.9	14.9	18.1	19.9	16.1	17.7	25.1	10.2
15-24 YEARS	50.7	76.3	25.2	55.6	83.6	27.4	24.2	35.3	13.8
25-34 YEARS	37.4	59.0	16.4	37.6	58.2	17.0	36.6	63.6	13.3
35-44 YEARS	33.5	50.3	17.4	31.4	46.2	16.9	46.9	77.5	20.0
45-54 YEARS	33.6	51.1	17.1	32.4	47.6	17.8	42.2	76.7	12.6
55-64 YEARS	39.7	57.6	23.5	38.5	54.7	23.8	49.1	80.4	21.2
65-74 YEARS	44.9	69.1	26.0	41.2	62.3	24.7	75.9	125.1	36.4
75-84 YEARS	101.4	141.8	76.9	103.8	141.1	81.4	77.2	148.3	*
85 AND OVER	256.0	414.9	184.6	266.2	429.9	193.3	130.3	244.1	*
AGE-ADJUSTED RATE<2>	36.4	53.3	20.6	36.6	52.8	21.4	35.8	58.6	16.0

<1> DEATHS WITH SEX OR RACE NOT STATED WERE RANDOMLY ALLOCATED PRIOR TO COMPUTATION OF AGE-SPECIFIC DEATH RATES. DEATHS WITH AGE NOT STATED WERE INCLUDED IN THE CATEGORY 85 AND OVER.

<2> BASED ON AGE-SPECIFIC DEATH RATES PER 100,000 POPULATION IN SPECIFIED GROUP. COMPUTED BY THE DIRECT METHOD, USING AS THE STANDARD POPULATION THE AGE DISTRIBUTION OF THE TOTAL POPULATION OF THE UNITED STATES AS ENUMERATED IN 1940; SEE TECHNICAL NOTES.

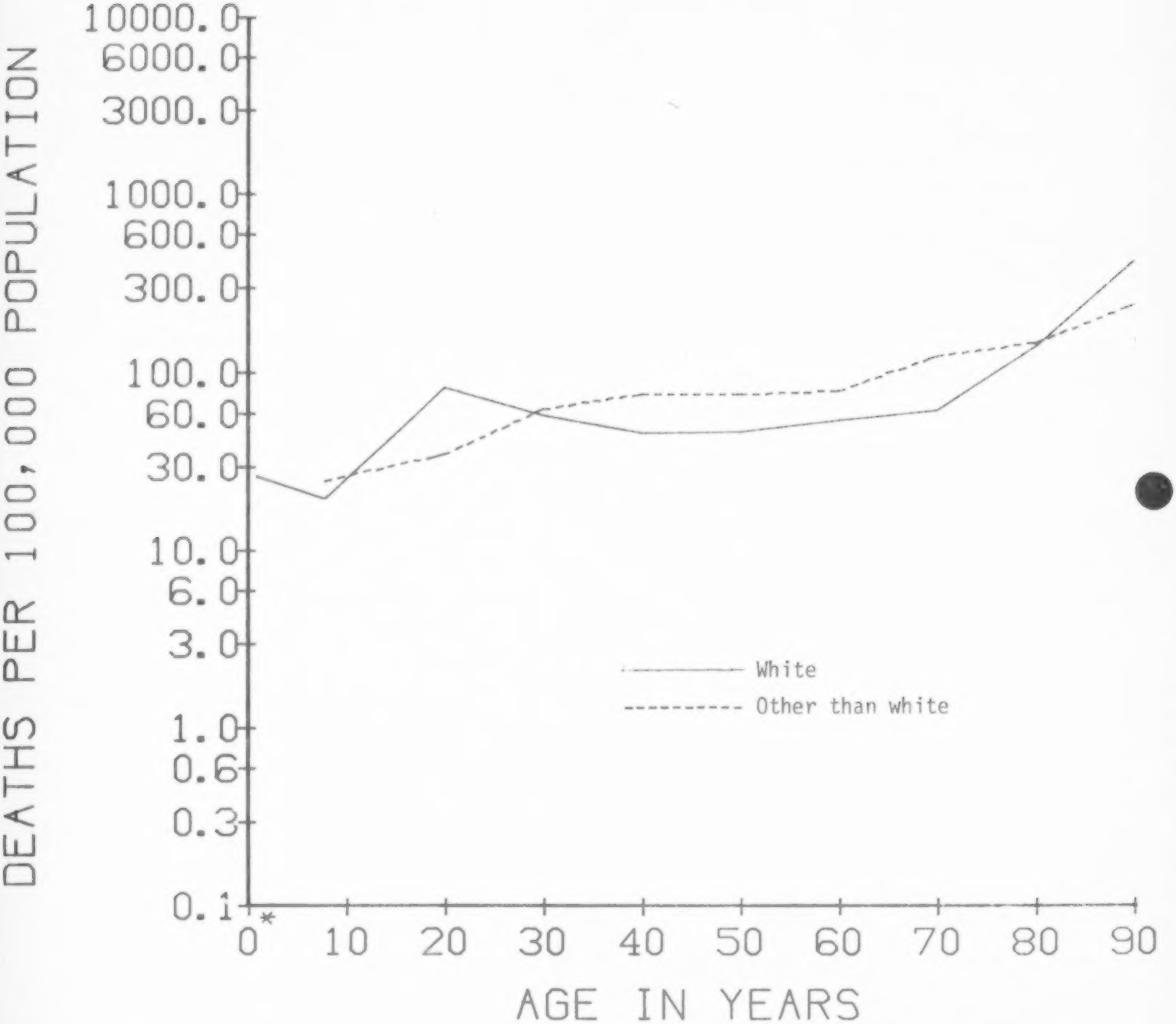
* RATE IS CONSIDERED STATISTICALLY UNRELIABLE.

FIGURE 2.21 - Age-Specific Accident Death Rates[1] by Sex, Michigan Residents, 1980



[1]Note that death rates are shown on a logarithmic scale: vertical distances represent relative differences in rate rather than absolute differences

FIGURE 2.22 - Age-Specific Accident Death Rates[1] by Race, Michigan Resident Males, 1980



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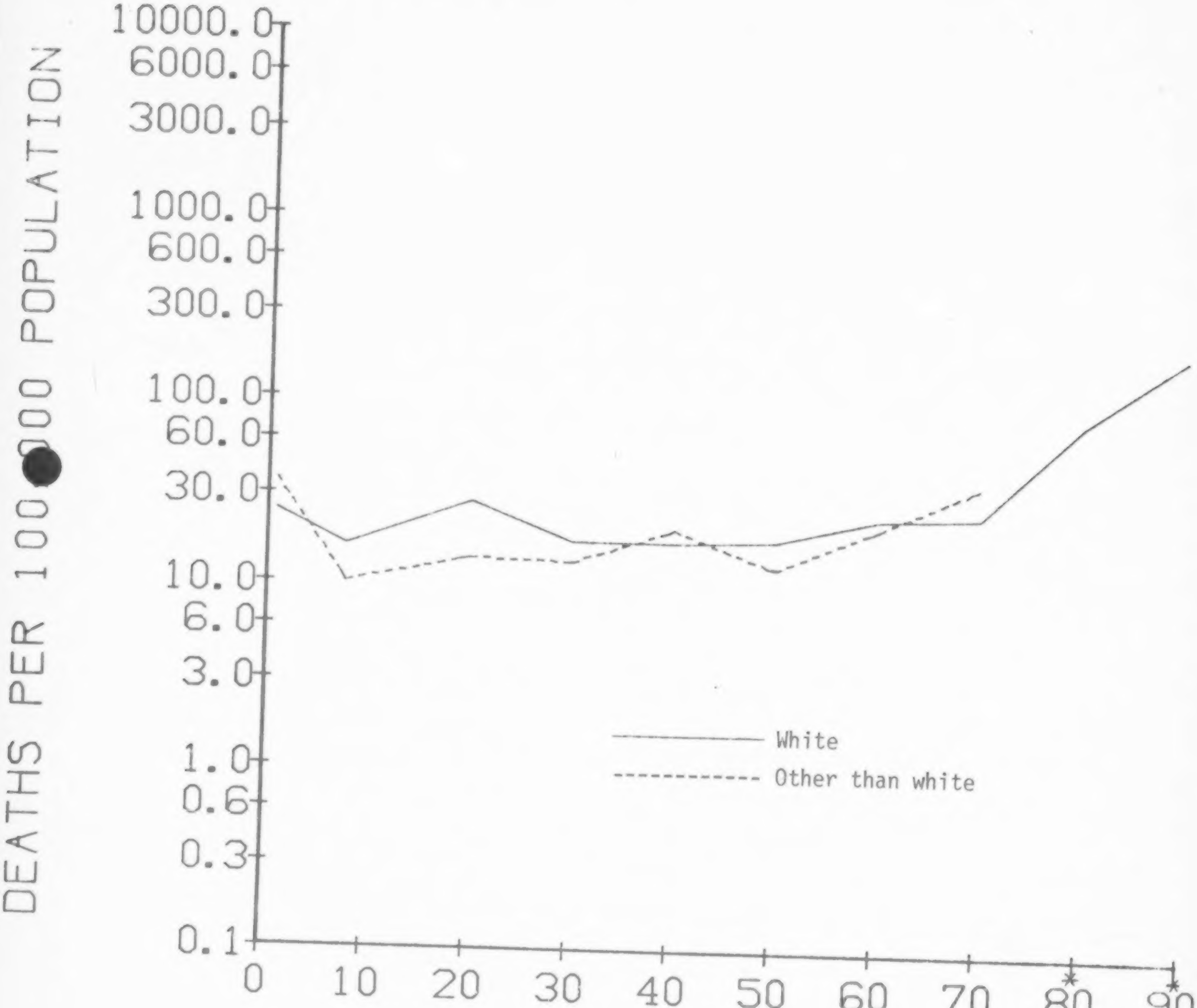
[1] Note that death rates are shown on a logarithmic scale: vertical distances represent relative differences in rate rather than absolute differences

FIGURE 2.23 - Age-Specific Accident Death Rates[1] by Race, Michigan Resident Females, 1980



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[1] Note that death rates are shown on a logarithmic scale: vertical distances represent relative differences in rate rather than absolute differences

counterparts from age 1 through 34 and from age 45 through 64. Crude accident death rates for white persons were higher than those for other than white persons. The age-adjusted rate for white males was lower than that for other than white males, while for females the relationship was reversed (Table 2.22).

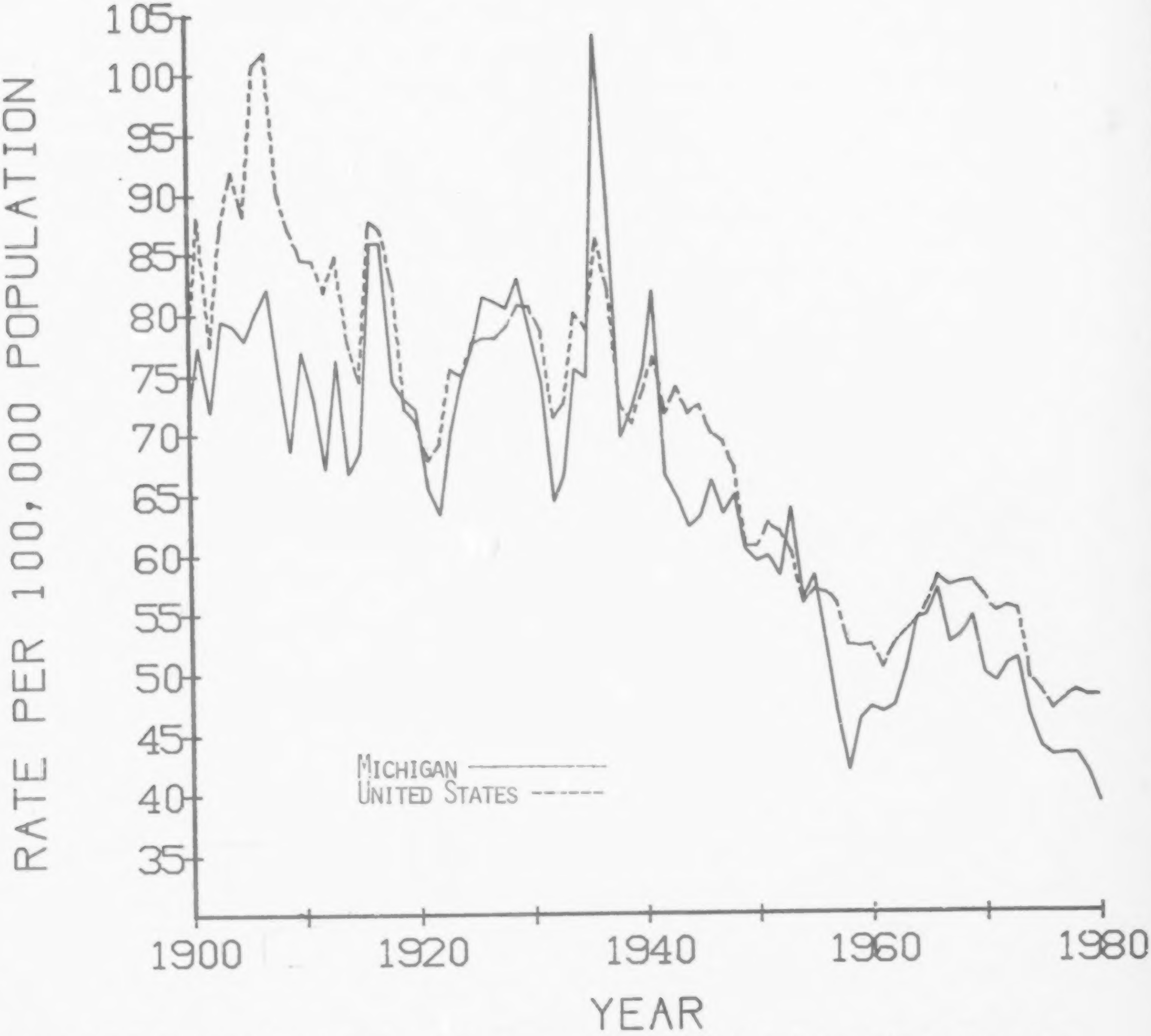
Michigan's accident death rate in 1900 was 71.9. The highest rate observed in this century was 103.1 in 1936, and the rate of 39.2 in 1980 is the lowest rate of the century. In six of the last seven years the accident death rate has fallen or remained the same. The rate in 1980 was 23 percent lower than that of 1973. The death rate from motor vehicle accidents was 20.3 in 1980. Except for the rate of 20.2 in 1975 this is the lowest motor vehicle accident death rate for Michigan since 1959 (see Table 4.8).

National rates have varied from 101.8 in 1907 to 46.9 in 1976. Michigan's rates have been below national rates fairly consistently since 1900. The last time Michigan's rate was above that of the United States was in 1964. The accident death rate for Michigan in 1980 was 18.2 percent below the provisional rate of 47.9 for the nation (Figure 2.24).

Michigan's age-adjusted death rates for accidental deaths have also been below the comparable national rates since 1970 (Table 2.23). Between 1970 and 1980 Michigan's age-adjusted rate declined by 25.1 percent, compared to a decline of 19.2 percent for the United States. Michigan's rate was 16.1 percent below the national rate in 1980. The age-adjusted rates by race and sex declined for each population subgroup during this period. The most significant declines occurred in the rates for other than white males and females (30.2 percent and 47.9 percent, respectively). In Michigan the rate for all other than white persons was 18 percent higher than that for white persons in 1970 but was 2 percent lower in 1980. This differential declined nationally from 43 percent higher in 1970 to 21 percent higher in 1978.

Motor vehicle accidents involving collision with another motor vehicle was the largest single cause of accidental death in 1980, resulting in 780 deaths (Table 2.24). Deaths from all types of motor vehicle accidents accounted for 1,880 deaths in 1980. Accidental falls of all types resulted in 485 deaths. Accidents caused by fires and flames, accidental drownings, and accidental poisonings caused 223, 213, and 148 deaths, respectively. Choking on food or other objects was the cause of 137 deaths, while misadventures during medical care, abnormal reactions, and late complications caused 54 deaths. Accidents caused by handguns and other firearms resulted in the deaths of 53 Michigan residents.

FIGURE 2.24 - ACCIDENT DEATH RATES, MICHIGAN AND UNITED STATES RESIDENTS,[1] 1900-1980[2]



[1] National rates are from death registration states for 1900-1932 and the United States for 1933-1980. U.S. rates for 1979 and 1980 are provisional.

[2] Accidental death rates since 1900 are suitable for general comparison over time but detailed study (such as time series) requires special consideration. See Technical Notes.

Table 2.23
Age-Adjusted Accident Death Rates[1] by Race and Sex, Michigan[2] and United States Residents, 1970-1980

Place	Year	All Races			White			Other Than White		
		Total	Male	Female	Total	Male	Female	Total	Male	Female
Mich.	1970	48.6	71.3	27.4	47.5	69.6	26.8	56.1	83.9	30.7
	1971	47.7	69.9	26.8	46.8	68.3	26.5	54.1	83.1	27.8
	1972	48.7	72.9	25.9	48.4	72.2	25.9	50.9	78.8	25.6
	1973	48.9	72.4	26.6	48.2	71.2	26.2	53.1	81.1	27.7
	1974	43.8	65.5	23.2	43.5	64.5	23.4	46.2	73.5	21.6
	1975	41.5	61.7	22.4	41.3	61.4	22.3	42.9	65.1	23.0
	1976	40.0	58.7	22.4	40.3	58.9	22.7	38.1	58.8	19.9
	1977	40.4	59.1	22.8	40.6	59.2	22.9	39.4	59.6	21.5
	1978	40.3	59.5	22.2	40.6	59.9	22.1	40.0	59.7	23.0
	1979	38.4	56.2	21.8	38.7	56.3	22.1	37.5	57.9	19.7
	1980	36.4	53.3	20.6	36.6	52.8	21.4	35.8	58.6	16.0
U.S.	1970	53.7	80.7	28.2	51.0	76.2	27.2	72.8	115.7	35.1
	1971	52.0	77.1	28.2	49.4	72.9	27.0	71.6	117.7	36.1
	1972	52.0	77.5	28.0	49.8	73.5	27.2	68.8	109.3	33.4
	1973	51.7	77.4	27.4	49.5	73.6	26.4	67.5	106.8	33.2
	1974	46.0	69.4	23.8	44.3	66.6	22.9	58.5	92.3	29.0
	1975	44.8	67.7	23.1	43.1	64.8	22.4	56.9	90.7	27.6
	1976	43.2	64.7	22.7	41.8	62.3	22.2	53.2	84.6	25.8
	1977	43.8	65.5	23.2	42.5	63.2	22.7	53.1	84.5	25.8
	1978	44.3	66.5	23.3	43.3	64.5	22.9	52.6	83.1	26.1
	1979	43.6[3]	---	---	---	---	---	---	---	---
	1980	43.4[3]	---	---	---	---	---	---	---	---

1 - Based on age-specific death rates per 100,000 population in specified group. Computed by the direct method, using as the standard population the age distribution of the total population of the United States as enumerated in 1940; see Technical Notes.

2 - Rates for Michigan for 1970-1979 have been revised; see Technical Notes.

3 - Provisional.

Table 2.24
Deaths Due to Accidents by Type of Accident, Michigan Residents, 1980

282 LIST NUMBER[1]	TYPE OF ACCIDENT	NUMBER OF DEATHS	PERCENT
236	Motor Vehicle Accidents Involving Collision with Another Motor Vehicle	780	21.5
252	Fracture, Cause Unspecified, and Other and Unspecified Falls	359	9.9
239	Motor Vehicle Accidents Not Involving Collision on Highway	323	8.9
237	Motor Vehicle Accidents Involving Collision with Pedestrian	307	8.5
238	Motor Vehicle Accidents Involving Collision with Other Vehicle or Object	295	8.1
262	All Other Accidents and Late Effects of Accidental Injury	264	7.3
253	Accidents Causes by Fires and Flames	223	6.1
255	Accidental Drowning and Submersion	213	5.9
256	Inhalation and Ingestion of Food or Other Object Causing Obstruction of Respiratory Tract or Suffocation	137	3.8
250	Fall From One Level to Another	116	3.2
240	Motor Vehicle Traffic Accidents of Unspecified Nature	104	2.9
246	Accidental Poisoning by Drugs, Medicaments, and Biologicals	75	2.1
248	Accidental Poisoning by Gases and Vapors	62	1.7
249	Misadventures During Medical Care, Abnormal Reactions, and Late Complications	54	1.5
258	Accidents Caused by All Other and Unspecified Firearms	51	1.4
241	Motor Vehicle Nontraffic Accidents	44	1.2
243	Water Transport Accidents	42	1.2
244	Air and Space Transport Accidents	40	1.1
261	Accidents Caused by Electric Current	36	1.0
235	Motor Vehicle Accidents Involving Collision with Train	27	0.7
259	Accidents Caused by Explosive Material	11	0.3
247	Accidental Poisoning by Other Solid or Liquid Substances	11	0.3
251	Fall on Same Level	10	0.3
242	Other Road Vehicle Accidents	10	0.3
260	Accidents Caused by Hot Substance or Object, Caustic or Corrosive Material, Steam, and Exposure to Radiation	9	0.2
263	Drugs, Medicaments, and Biological Substances Causing Adverse Effects in Therapeutic Use	9	0.2
254	Lightning	6	0.2
234	Railway Accidents	5	0.1
257	Accident Caused by Handgun	2	0.1
245	Vehicle Accidents Not Elsewhere Classifiable	2	0.1
	TOTAL	3,627	100.0

1 - List of 282 Selected Causes developed by the National Center for Health Statistics for tabulation of Mortality Data coded by the 9th Revision of the *International Classification of Diseases*, WHO.

Deaths from motor vehicle accidents accounted for 51.8 percent of all accidental deaths in 1980. This proportion varied by age group, from a low of 22.8 percent for persons 65 years of age or older to 74.4 percent for persons 15-24 years of age (Table 2.25). Among children under 15 years the most frequent causes of accidental death were motor vehicle accidents, fires, and drownings, resulting in 174, 78, and 58 deaths respectively in 1980. Motor vehicle accidents and drowning were the leading causes of accidental death among persons 15-24 years and 25-44 years of age. Accidental falls, which caused 13.4 percent of all accidental deaths, were the cause of 44.3 percent of the accidental deaths among persons 65 years of age or older.

Table 2.26 displays the distribution of motor vehicle accident deaths by the age of the deceased person and the type of involvement of the deceased in the accident. Of the 1,880 persons killed in motor vehicle accidents in 1980, 764 (41 percent) were driving motor vehicles other than motorcycles at the time of the fatal accident. There were 333 deaths of passengers in motor vehicles other than motorcycles, while 324 pedestrians were killed in motor vehicle accidents. Motorcycle accidents resulted in the deaths of 127 motorcyclists and 10 motorcycle passengers. It should be noted that for 265 deaths (14 percent of the total) the type of involvement of the deceased in the accident was not stated. The type of involvement of the deceased in the accident varied by age. The majority of children under age 15 killed in motor vehicle accidents were either pedestrians (38 percent) or passengers (30 percent). Nearly two thirds of the persons 15-24 years of age who died in motor vehicle accidents in 1980 were either drivers (41 percent) or passengers (23 percent) of motor vehicles other than motorcycles. Among persons 25-44 years and 45-64 years of age 48 percent and 52 percent, respectively, were driving motor vehicles other than motorcycles at the time of the accident. Pedestrians accounted for 30 percent of all motor vehicle accident deaths among persons 65 years of age or older, compared to 17 percent for persons of all ages.

Of the total 3,627 accidental deaths, 1,905 or 53 percent occurred on streets and highways (Table 2.27). The second most common place of occurrence was the home with 707 deaths (19 percent). There were 57 accidental deaths at industrial places and premises, 56 at resident institutions, and 52 in public buildings. Note that the place of injury was not specified for 13 percent of the accidental deaths.

It can be seen from Figure 2.25 that the probability of eventually suffering accidental death is greater in the younger age groups than later in life. According to Michigan mortality data from the years 1978 through 1980 the probability of eventually dying from accidental causes is 0.044 for males and 0.025 for females at birth.

Table 2.25
Deaths Due to Accidents by Age at Death and Type of Accident, Michigan Residents, 1980

Type of Accident	Age at Death						
	Total	< 15 years	15-24	25-44	45-64	65+	Not Stated
Total	3,627	411	911	912	656	736	1
Motor Vehicle Accidents	1,880	174	678	573	287	168	-
Accidental Falls	485	2	9	46	102	326	-
Accidents Caused by Fires and Flames	223	78	17	43	41	44	-
Accidental Drownings	213	58	60	56	27	11	1
Accidental Poisonings	148	7	31	53	38	19	-
Choking on Food or Other Object	137	19	6	15	38	59	-
Misadventures During Medical Care, Abnormal Reactions, and Late Complications	54	2	3	4	13	32	-
Accidents Caused by Handguns and Other Firearms	53	11	24	11	7	-	-
Water Transport Accidents	42	5	16	13	6	2	-
Air and Space Transport Accidents	40	3	5	20	12	-	-
All Other Accidents	352	52	62	78	85	75	-

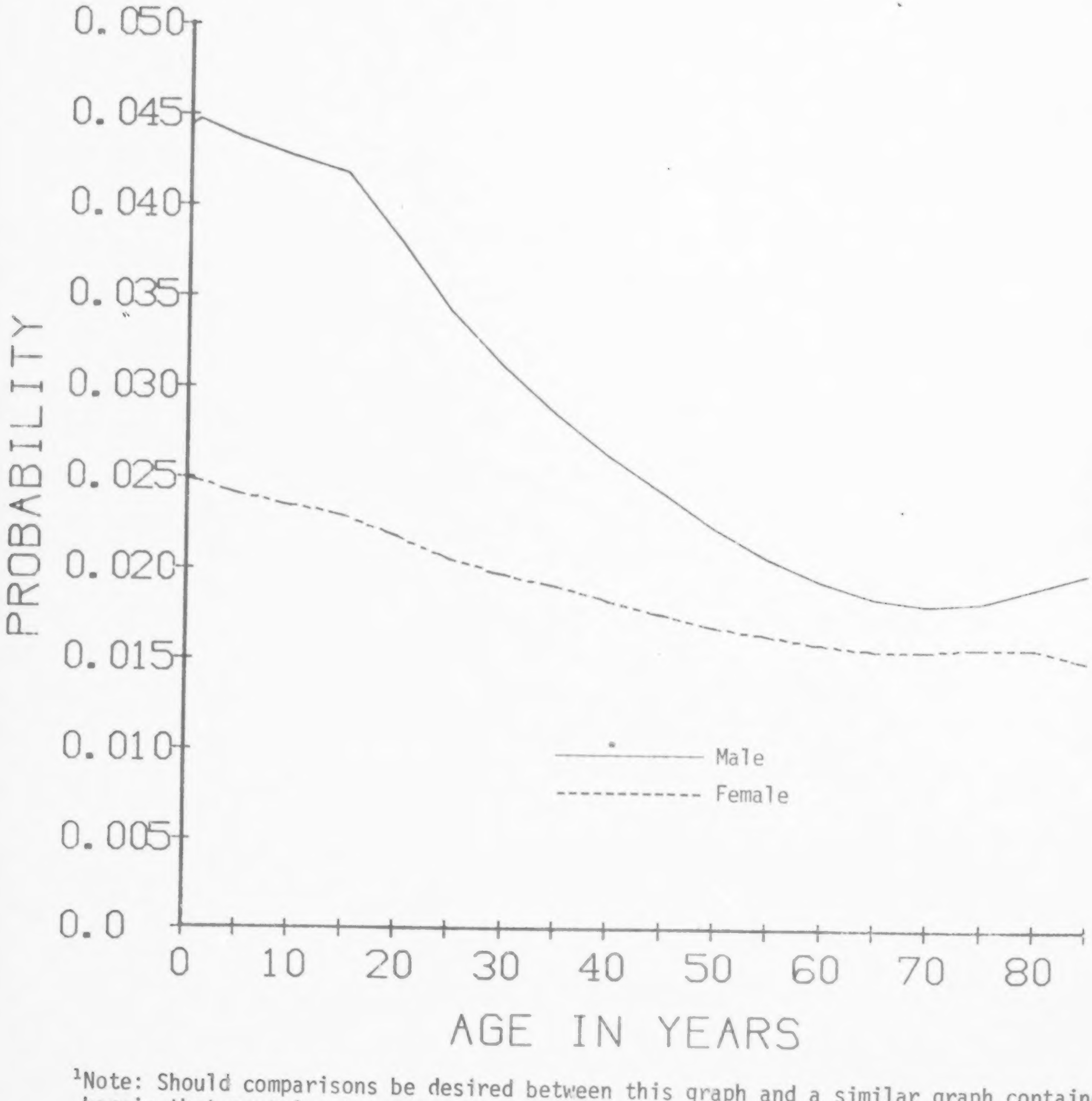
Table 2.26
Deaths from Motor Vehicle Accidents by Person Injured and Age at Death, Michigan Residents, 1980

Person Injured	Age at Death					
	Total	<15 yrs	15-24	25-44	45-64	65+
Total	1,880	174	678	573	287	168
Driver of Motor Vehicle Other Than Motorcycle	764	2	281	273	148	60
Passenger in Motor Vehicle Other Than Motorcycle	333	51	157	68	29	28
Motorcyclist	127	5	53	59	9	1
Passenger on Motorcycle	10	1	6	3	-	-
Pedal Cyclist	56	33	16	3	4	-
Pedestrian	324	66	67	78	62	51
Other Specified Person	1	-	-	-	1	-
Unspecified Person	265	16	98	89	34	28

Table 2.27
Deaths Due to Accidents by Place of Injury, Michigan Residents, 1980

PLACE	NUMBER OF DEATHS
Street and Highway	1,905
Home	707
Industrial Place and Premises	57
Resident Institution	56
Public Building	52
Farm	45
Place for Recreation and Sport	24
Mine and Quarry	10
Other Specified Places	302
Place Not Specified	469
Total	3,627

FIGURE 2.25 - Probability of Eventually Dying from Accidental causes by Age and Sex, Michigan Residents, 1978-1980[1]



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[1] Note: Should comparisons be desired between this graph and a similar graph contained herein that pertains to some other specified cause of death, differences in scale may be encountered.

Probabilities for males decline slowly through childhood and the teenage years, fall by nearly one third between ages 15 and 35, and thereafter decline more slowly until the lowest probability of 0.018 is reached at age 70. For females the probabilities decline more moderately and steadily. Probabilities for males remain much higher than for females until about age 45 and slightly higher after that age.

CHRONIC OBSTRUCTIVE PULMONARY DISEASES AND ALLIED CONDITIONS

The fifth leading cause of death in 1980 was the cause of death category chronic obstructive pulmonary diseases and allied conditions. This group of diseases caused 2,060 Michigan resident deaths, an increase of 6.5 percent from the 1979 figure. Of the 2,060 deaths, 1,416 (68.7 percent) were to males (Table 2.28).

The median age at death of persons who died from these respiratory diseases was 73 years, slightly higher than the median of 72 years for deaths from all causes. However, unlike deaths from all causes where the median for females was substantially higher than for males (75 years and 69 years), the median age of females who died from chronic obstructive pulmonary diseases and allied conditions was lower than that for males (71 years compared to 73 years). The median age for white persons (73 years) was six years higher than that for persons of other races (67 years).

The crude death rate for chronic obstructive pulmonary diseases and allied conditions was 22.2 per 100,000 population. The crude death rate for males was 2.3 times that for females (Table 2.29). Age-specific rates for males and females from Table 2.29 are graphically presented in Figure 2.26. The strong association between chronic obstructive pulmonary diseases and allied conditions and increasing age is clearly evident. Note also that age-specific rates for males are higher than those for females in all age groups with sufficient events to calculate rates. The relative differential between rates for males and females increases with age through ages 75-84, where the rate for males is 5.2 times that for females. The age-adjusted death rate for this group of diseases was 2.9 times as high for males as it was for females (25.5 and 8.9 deaths per 100,000 population respectively).

Age-specific rates for white and other than white persons are displayed in Figure 2.27. Rates were higher for other than white persons prior to age 65, after which they were higher for white persons. The age-adjusted death rate from these respiratory diseases for white persons was 26 percent above that for other than white persons.

Table 2.30 presents age-adjusted death rates by sex and race for the period 1970-1980 for deaths from this group of respiratory diseases. The age-adjusted death rates for males remained fairly constant over the decade, while for females the rate in 1980 was 59 percent higher than in 1970. The increase in age-adjusted rates for females was due to an even larger increase (70 percent) in rates for white females, while the rate for other than white females was lower in 1980 than in 1970. The age-adjusted death rate for the total population of Michigan from chronic obstructive

TABLE 2.28
DEATHS DUE TO CHRONIC OBSTRUCTIVE PULMONARY DISEASES AND ALLIED CONDITIONS BY AGE, RACE, AND SEX, MICHIGAN RESIDENTS, 1980

AGE IN YEARS	ALL RACES			WHITE			ALL OTHER			RACE NOT STATED		
	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE
UNDER 1	-	-	-	-	-	-	-	-	-	-	-	-
1-4	5	4	1	3	2	1	2	2	-	-	-	-
5-9	-	-	-	-	-	-	-	-	-	-	-	-
10-14	3	-	3	2	-	2	1	-	1	-	-	-
15-19	-	-	-	-	-	-	-	-	-	-	-	-
20-24	3	1	2	1	1	-	2	-	2	-	-	-
25-29	7	1	6	1	-	1	6	1	5	-	-	-
30-34	4	3	1	-	-	-	4	3	1	-	-	-
35-39	7	3	4	4	-	4	3	3	-	-	-	-
40-44	12	7	5	8	3	5	4	4	-	-	-	-
45-49	20	11	9	15	8	7	5	3	2	-	-	-
50-54	57	40	17	48	33	15	9	7	2	-	-	-
55-59	118	70	48	99	57	42	19	13	6	-	-	-
60-64	224	143	81	203	127	76	21	16	5	-	-	-
65-69	330	215	115	309	199	110	20	16	4	1	-	1
70-74	387	279	108	366	262	104	21	17	4	-	-	-
75-79	393	300	93	370	282	88	22	17	5	1	1	-
80-84	250	189	61	235	176	59	13	12	1	2	1	1
85-89	168	115	53	160	110	50	7	4	3	1	1	-
90+	72	35	37	68	32	36	4	3	1	-	-	-
NOT STATED	-	-	-	-	-	-	-	-	-	-	-	-
ALL AGES	2060	1416	644	1892	1292	600	163	121	42	5	3	2
MEDIAN AGE AT LAST BIRTHDAY	73	73	71	73	74	72	67	68	60	*	*	*

TABLE 2.29
DEATH RATES FOR DEATHS DUE TO CHRONIC OBSTRUCTIVE PULMONARY DISEASES AND ALLIED CONDITIONS BY AGE, RACE, AND SEX <1>, MICHIGAN RESIDENTS, 1980

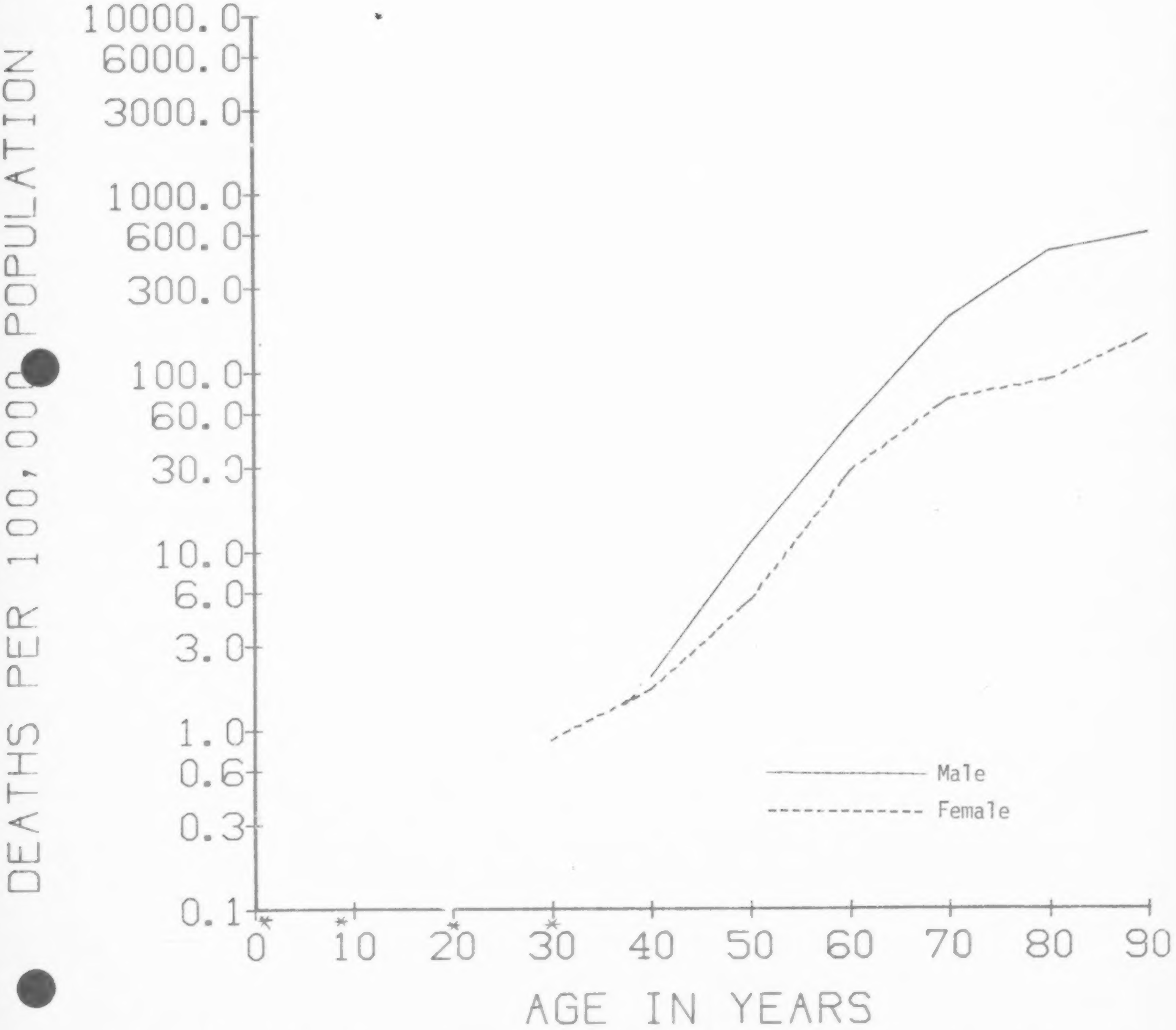
AGE	ALL RACES			WHITE			OTHER THAN WHITE		
	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE
ALL AGES-CRUDE RATE	22.2	31.4	13.6	24.1	33.6	15.0	11.7	18.2	5.8
UNDER 1 YEAR	*	*	*	*	*	*	*	*	*
1-14 YEARS	.4	*	*	.3	*	*	*	*	*
15-24 YEARS	*	*	*	*	*	*	*	*	*
25-34 YEARS	.7	*	.9	*	*	*	4.2	*	4.7
35-44 YEARS	1.8	2.0	1.7	1.4	*	2.0	5.0	10.6	*
45-54 YEARS	8.3	11.3	5.4	7.8	10.3	5.3	11.8	18.3	*
55-64 YEARS	39.5	52.0	28.3	39.4	50.6	29.2	40.9	63.0	21.2
65-74 YEARS	128.8	202.0	71.5	136.0	211.2	77.1	69.1	125.1	24.3
75-84 YEARS	234.6	471.7	90.4	243.7	491.7	94.9	142.3	286.8	41.4
85 AND OVER	293.9	592.7	159.7	303.3	614.8	164.6	179.1	341.8	*
AGE-ADJUSTED RATE<2>	15.7	25.5	8.9	16.0	25.8	9.2	12.7	21.5	5.7

<1> DEATHS WITH SEX OR RACE NOT STATED WERE RANDOMLY ALLOCATED PRIOR TO COMPUTATION OF AGE-SPECIFIC DEATH RATES. DEATHS WITH AGE NOT STATED WERE INCLUDED IN THE CATEGORY 85 AND OVER.

<2> BASED ON AGE-SPECIFIC DEATH RATES PER 100,000 POPULATION IN SPECIFIED GROUP. COMPUTED BY THE DIRECT METHOD, USING AS THE STANDARD POPULATION THE AGE DISTRIBUTION OF THE TOTAL POPULATION OF THE UNITED STATES AS ENUMERATED IN 1940; SEE TECHNICAL NOTES.

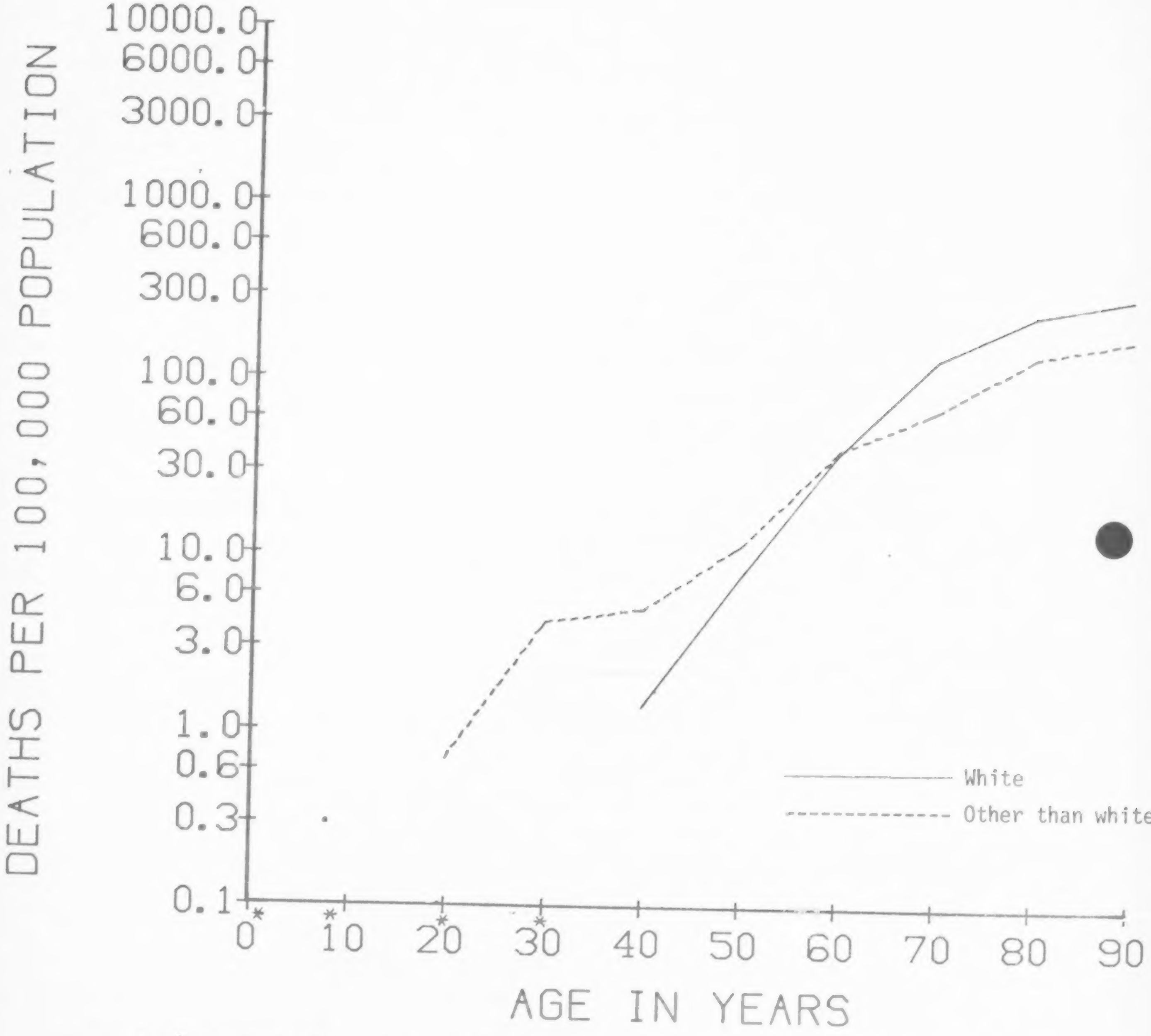
* RATE IS CONSIDERED STATISTICALLY UNRELIABLE.

FIGURE 2.26 - Age-Specific Death Rates[1] for Deaths due to Chronic Obstructive Pulmonary Diseases and Allied Conditions, by Sex, Michigan Residents, 1980



[1] Note that death rates are shown on a logarithmic scale: vertical distances represent relative differences in rate rather than absolute differences

FIGURE 2.27 - Age-Specific Death Rates[1] for Deaths Due to Chronic Obstructive Pulmonary Diseases and Allied Conditions, by Race, Michigan Residents, 1980



[1] Note that death rates are shown on a logarithmic scale: vertical distances represent relative differences in rate rather than absolute differences

Table 2.30
Age-Adjusted Death Rates[1] for Deaths Due to Chronic Obstructive Pulmonary Diseases and Allied Conditions[2] by Race and Sex, Michigan[3] Residents, 1970-1980

		All Races			White			Other Than White		
ace	Year	Total	Male	Female	Total	Male	Female	Total	Male	Female
	1970	14.2	24.9	5.6	14.3	25.3	5.4	12.3	18.5	6.7
	1971	13.9	24.4	5.6	13.8	24.5	5.4	13.8	22.0	6.5
	1972	14.9	26.5	5.7	15.2	27.2	5.8	11.0	19.1	4.2
	1973	15.4	26.7	6.4	15.6	27.3	6.5	12.0	20.2	5.0
	1974	13.8	24.1	5.8	14.2	24.7	6.1	9.4	16.9	3.1
ch.	1975	14.3	25.1	6.1	14.6	25.7	6.2	11.0	18.3	5.0
	1976	14.7	25.4	6.8	15.0	26.0	6.9	11.7	20.2	4.9
	1977	14.1	24.4	6.5	14.5	25.2	6.5	10.5	16.5	5.7
	1978	15.7	26.1	8.2	15.9	26.4	8.4	13.5	22.8	6.1
	1979	15.2	26.1	7.4	15.5	26.7	7.6	12.2	20.7	5.6
	1980	15.7	25.5	8.9	16.0	25.8	9.2	12.7	21.5	5.7

- Based on age-specific death rates per 100,000 population in specified group. Computed by the direct method, using as the standard population the age distribution of the total population of the United States as enumerated in 1940; see Technical Notes.
- Categories used for 1970-1978 are 8th Revision ICDA codes 490-493 (bronchitis, emphysema, and asthma) and *519.3 (chronic obstructive lung disease without mention of asthma, bronchitis, or emphysema). For 1979 and 1980 the 9th Revision ICD codes are 490-496. No single comparability ratio was developed for the 9th Revision category and the most nearly comparable 8th Revision categories. However, for the combined categories of bronchitis, emphysema, and asthma the provisional comparability ratio is 1.0002, and that for the remaining titles (chronic obstructive lung disease without mention of asthma, bronchitis, or emphysema under the 8th Revision and other chronic obstructive pulmonary diseases and allied conditions under the 9th Revision) is 1.0054. Thus, the comparability between the composite categories is quite good. The composite category was not used for ranking causes of death under the 8th Revision and thus appeared in 1979 for the first time among the 10 leading causes of death.
- Rates for Michigan for 1970-1979 have been revised; see Technical Notes.

pulmonary diseases and allied conditions was 15.7 in 1980. This is 3.1 percent below the provisional United States rate of 16.2.

Of the 2,060 Michigan resident deaths due to chronic obstructive pulmonary diseases and allied conditions, 1,236 (60.0 percent) were classified as chronic airways obstruction, not elsewhere classified. There were 574 deaths in 1980 due to emphysema, 125 due to bronchitis, and 100 due to asthma (Table 2.31).

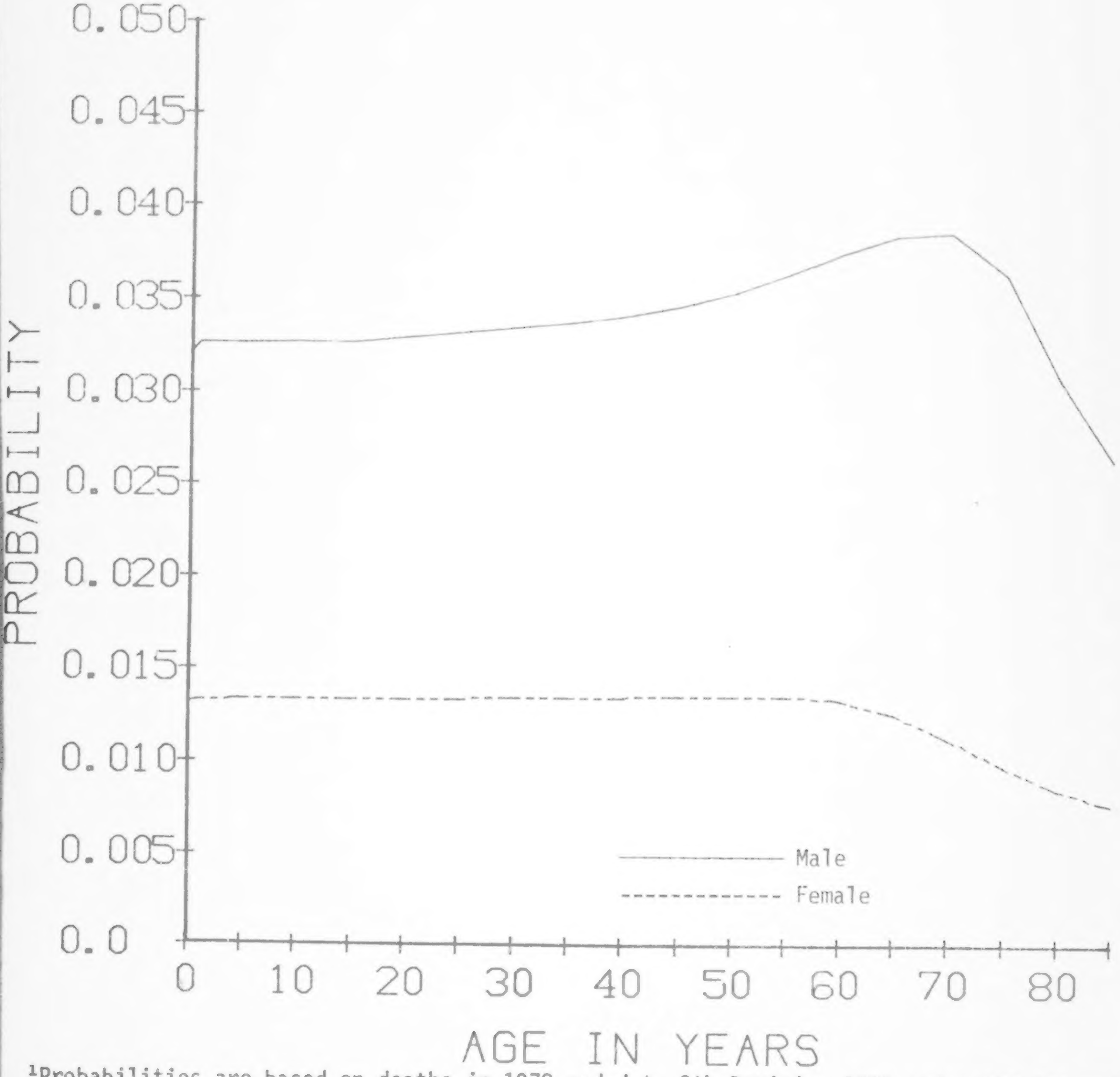
Based on mortality data from 1978-1980, the probability of eventual death due to chronic obstructive pulmonary diseases and allied conditions is 0.032 for males and 0.013 for females at birth. The probability for males increases steadily to a peak of 0.039 at age 70 and then declines in the last few age groups. The probability for females remains stable from birth through age 60 and then declines rapidly in the oldest age groups (Figure 2.28). Between ages 60 and 85 the probability for females declines by 38 percent to 0.008. It should be recalled that these probability estimates are based on mortality data which have been changing rapidly, in part due to changing diagnostic conventions.

Table 2.31
Deaths Due to Chronic Obstructive Pulmonary Diseases and Allied Conditions by Specific Cause, Michigan Residents, 1980

282 LIST[1] NUMBER	CAUSE OF DEATH	NUMBER OF DEATHS	PERCENT
174	Chronic Airways Obstruction, not elsewhere classified	1,236	60.0
171	Emphysema	574	27.9
170	Chronic Bronchitis	116	5.6
172	Asthma	100	4.9
173	Bronchiectasis and Extrinsic Allergic Alveolitis	25	1.2
169	Bronchitis, not Specified as Acute or Chronic	9	0.4
	TOTAL	2,060	100.0

1 - List of 282 Selected Causes developed by the National Center for Health Statistics for tabulation of Mortality Data coded by the 9th Revision of the International Classification of Diseases, WHO.

FIGURE 2.28 - Probability of Eventually Dying from Chronic Obstructive Pulmonary Diseases and Allied Conditions[1], by Age and Sex, Michigan Residents, 1978-1980[2]



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[1] Probabilities are based on deaths in 1978 coded to 8th Revision ICDA codes 490-493 and *519.3, and deaths in 1979 and 1980 coded to 9th Revision ICD codes 490-496.

[2] Note: Should comparisons be desired between this graph and a similar graph contained herein that pertains to some other specified cause of death, differences in scale may be encountered.

PNEUMONIA AND INFLUENZA

One of every 41 deaths that occurred to Michigan residents in 1980 was due to pneumonia and influenza. There were a total of 1,808 such deaths of which 947 (52.4 percent) were to males.

The overall median age at death in 1980 for those dying from pneumonia and influenza was 80 years (Table 2.32). This is well above the median age of 72 years for all deaths. The median ages at death for white persons were significantly higher than those for other than white persons. The median age for white males (79) was 13 years greater than that for other than white males (66), while for white females the median of 84 years exceeded by 10 years that for other than white females. For persons of all races the median for males was 5 years less than that for females.

The overall crude death rate for pneumonia and influenza deaths in 1980 was 19.5, compared to a revised rate of 15.9 in 1979. The crude rate of 21.0 for males was 16 percent higher than the rate of 18.1 for females. On an age-adjusted basis, this differential increased significantly. The age-adjusted rate for males exceeded that for females by 87 percent (Table 2.33).

The age-specific death rates for males and females given in Table 2.33 are graphically displayed in Figure 2.29. Note the high pneumonia and influenza death rates for both sexes under 1 year of age. Pneumonia and influenza death rates increased rapidly beyond age 54 with rates for males significantly higher than for females.

The crude rates given in Table 2.33 indicate that a greater proportion of the white population died of pneumonia and influenza in 1980 than was the case for the other than white population. On an age-adjusted basis, however, the rate for the other than white group was 66 percent above that for the white group. Age-specific data indicate that the rates for the other than white population were higher from birth to age 85. Among persons 85 years or over, the pneumonia and influenza death rate was higher for white persons (Figure 2.30).

Pneumonia and influenza death rates have declined markedly since 1900 both nationally and in Michigan (Figure 2.31). The annual rate was quite erratic from 1900 through 1940 or 1945. Since that time the rate has been fairly stable in terms of year to year variation while the general trend has remained downward. Michigan's rate of death due to this cause has been below the national rate almost without exception throughout this century. In 1900, the rate in Michigan was 120.3 while the national statistic was 202.1. The peak year for both was 1918 when the rates for

TABLE 2.32
DEATHS DUE TO PNEUMONIA AND INFLUENZA BY AGE, RACE, AND SEX, MICHIGAN RESIDENTS, 1980

AGE IN YEARS	ALL RACES			WHITE			ALL OTHER			RACE NOT STATED		
	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE
UNDER 1	27	17	10	20	12	8	7	5	2	-	-	-
1-4	8	4	4	4	2	2	4	2	2	-	-	-
5-9	4	3	1	4	3	1	-	-	-	-	-	-
10-14	3	2	1	3	2	1	-	-	-	-	-	-
15-19	6	2	4	5	2	3	1	-	1	-	-	-
20-24	2	1	1	2	1	1	-	-	-	-	-	-
25-29	7	5	2	5	4	1	2	1	1	-	-	-
30-34	19	12	7	12	7	5	7	5	2	-	-	-
35-39	25	19	6	16	10	6	9	9	-	-	-	-
40-44	20	10	10	8	2	6	12	8	4	-	-	-
45-49	31	20	11	16	9	7	15	11	4	-	-	-
50-54	37	27	10	20	14	6	17	13	4	-	-	-
55-59	58	32	26	45	21	24	13	11	2	-	-	-
60-64	76	54	22	65	46	19	11	8	3	-	-	-
65-69	134	87	47	109	71	38	25	16	9	-	-	-
70-74	159	96	63	137	85	52	21	11	10	1	-	1
75-79	229	130	99	202	115	87	27	15	12	-	-	-
80-84	325	171	154	294	152	142	30	18	12	1	1	-
85-89	328	143	185	308	132	176	18	10	8	2	1	1
90+	310	112	198	292	103	189	18	9	9	-	-	-
NOT STATED	-	-	-	-	-	-	-	-	-	-	-	-
ALL AGES	1808	947	861	1567	793	774	237	152	85	4	2	2
MEDIAN AGE AT LAST BIRTHDAY	80	78	83	82	79	84	68	66	74	*	*	*

TABLE 2.33
PNEUMONIA AND INFLUENZA DEATH RATES BY AGE, RACE, AND SEX <1>, MICHIGAN RESIDENTS, 1980

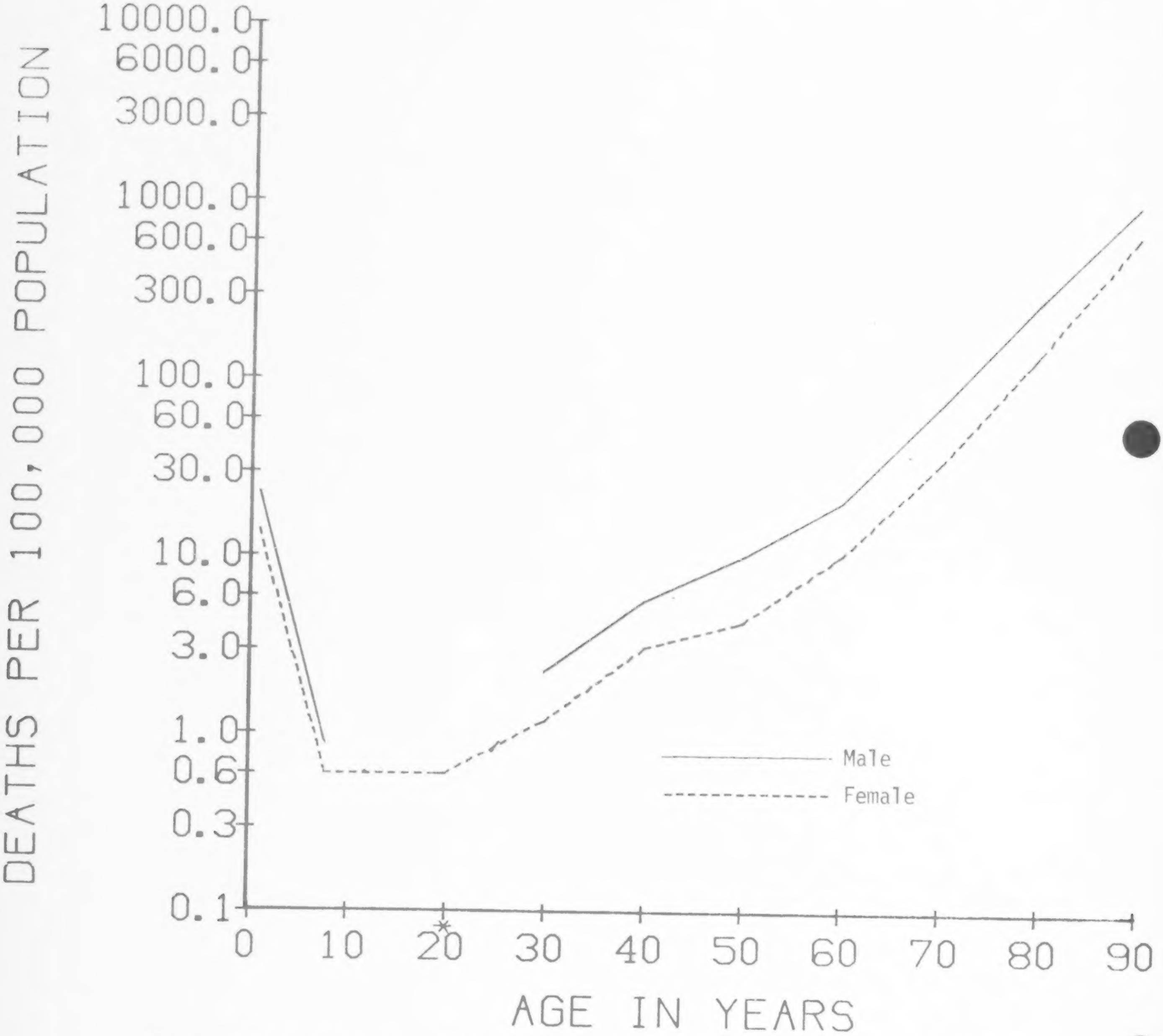
AGE	ALL RACES			WHITE			OTHER THAN WHITE		
	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE
ALL AGES-CRUDE RATE	19.5	21.0	18.1	19.9	20.6	19.3	17.1	23.0	11.7
UNDER 1 YEAR	18.5	22.8	14.0	17.0	19.9	13.9	24.7	35.2	*
1-14 YEARS	.7	.9	.6	.7	.8	*	*	*	*
15-24 YEARS	.4	*	.6	.5	*	*	*	*	*
25-34 YEARS	1.7	2.3	1.2	1.3	1.7	.9	3.8	5.5	*
35-44 YEARS	4.4	5.7	3.1	2.7	2.7	2.7	14.9	25.8	*
45-54 YEARS	7.3	10.4	4.4	4.4	5.8	3.1	27.0	43.8	12.6
55-64 YEARS	15.5	21.0	10.5	14.3	18.4	10.7	24.5	41.3	9.6
65-74 YEARS	52.6	74.8	35.3	49.7	71.5	32.6	77.5	102.4	57.7
75-84 YEARS	202.1	290.4	148.4	199.2	286.5	146.8	231.7	326.3	165.6
85 AND OVER	781.4	1007.6	679.7	795.9	1010.4	700.4	602.5	976.6	415.3
AGE-ADJUSTED RATE<2>	11.7	16.1	8.6	10.8	14.6	8.2	17.9	27.0	10.7

<1> DEATHS WITH SEX OR RACE NOT STATED WERE RANDOMLY ALLOCATED PRIOR TO COMPUTATION OF AGE-SPECIFIC DEATH RATES. DEATHS WITH AGE NOT STATED WERE INCLUDED IN THE CATEGORY 85 AND OVER.

<2> BASED ON AGE-SPECIFIC DEATH RATES PER 100,000 POPULATION IN SPECIFIED GROUP. COMPUTED BY THE DIRECT METHOD, USING AS THE STANDARD POPULATION THE AGE DISTRIBUTION OF THE TOTAL POPULATION OF THE UNITED STATES AS ENUMERATED IN 1940; SEE TECHNICAL NOTES.

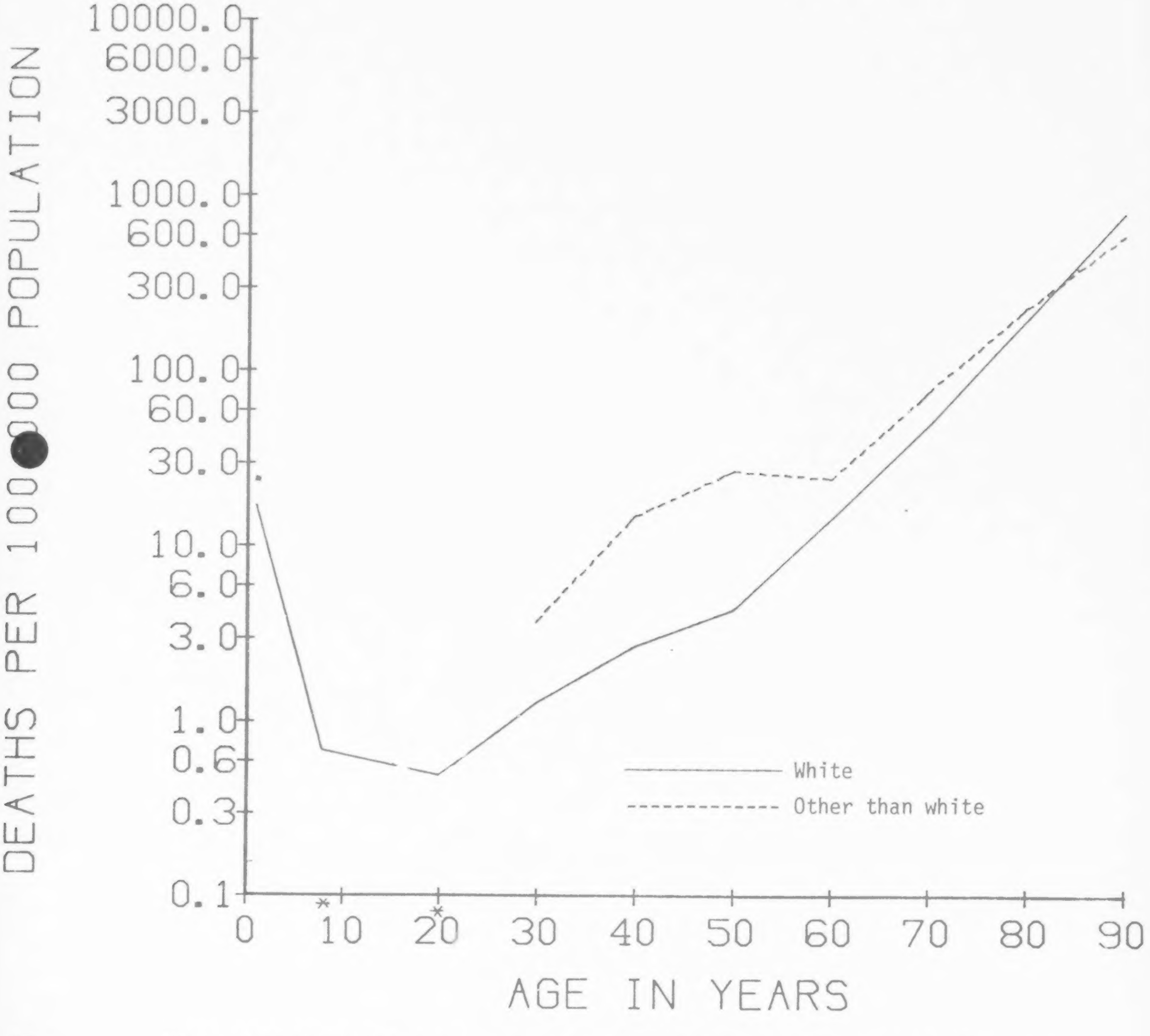
* RATE IS CONSIDERED STATISTICALLY UNRELIABLE.

FIGURE 2.29 - Age-Specific Pneumonia and Influenza Death Rates[1] by Sex, Michigan Residents, 1980



[1] Note that death rates are shown on a logarithmic scale: vertical distances represent relative differences in rate rather than absolute differences

FIGURE 2.30 - Age-Specific Pneumonia and Influenza Death Rates[1] by Race, Michigan Residents, 1980



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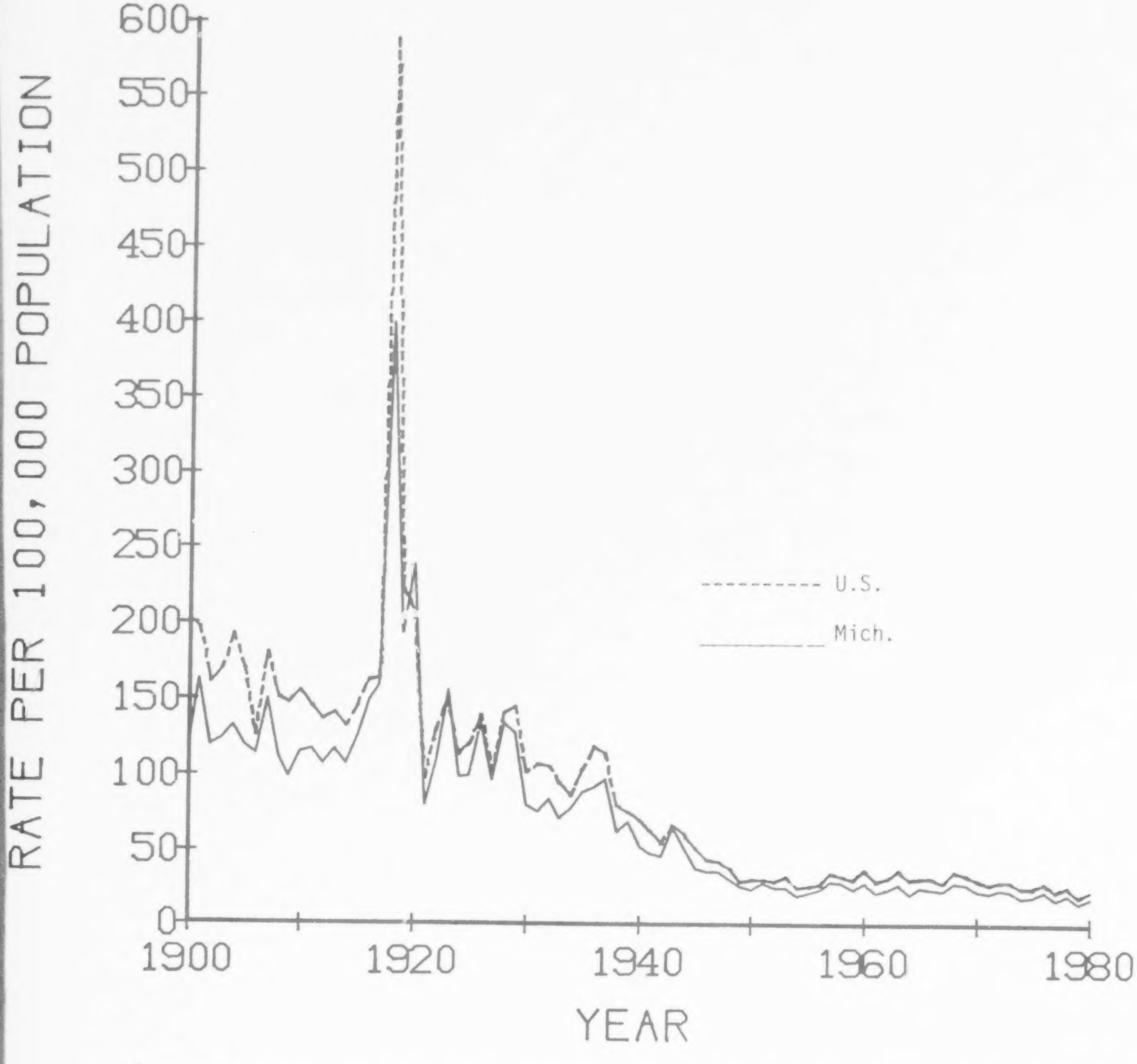
[1] Note that death rates are shown on a logarithmic scale: vertical distances represent relative differences in rate rather than absolute differences

FIGURE 2.31 Pneumonia and Influenza Death Rates, Michigan and United States Residents,[1] 1900-1980[2]



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[1] National rates are from death registration states for 1900-1932 and the United States for 1933-1980. U.S. rates for 1979 and 1980 are provisional.

[2] Pneumonia and influenza death rates since 1900 are suitable for general comparison over time but detailed study (such as time series) requires special consideration. See Technical Notes.

the United States and Michigan were 588.5 and 399.8, respectively. In 1979 century low rates of 15.9 for Michigan and 20.0 (provisional) for the nation were recorded. Michigan's rate of 19.5 in 1980 was 17.7 percent below the provisional rate of 23.7 for the United States.

Michigan's age-adjusted death rate for pneumonia and influenza has been below that for the nation every year since 1970 (Table 2.34). Between 1970 and 1980 the age-adjusted rate for Michigan declined by 39 percent. Rates for other than white persons declined more rapidly than rates for white persons. The decline was most dramatic for other than white females for whom the age-adjusted rate dropped from 30.8 in 1970 to 10.7 in 1980, a decline of 65 percent. The declines in rates for other than white males and females were more pronounced in Michigan than for the U.S.

The majority of deaths due to pneumonia and influenza were not attributed to a specific organism. Pneumonia due to other (5 deaths) and unspecified (1,277 deaths) organisms accounted for 70.9 percent of all Michigan pneumonia and influenza deaths in 1980 (Table 2.35). Another 14.9 percent of the deaths were due to bronchopneumonia, organism unspecified, and 132 deaths were due to pneumococcal and other bacterial pneumonia (60 and 72 deaths, respectively). The three most frequent categories of pneumonia and influenza deaths together accounted for 93.1 percent of all such deaths. Influenza was directly involved in 5.3 percent of the pneumonia and influenza deaths in 1980, compared to 1.4 percent in 1979 and 8.7 percent in 1978.

The likelihood of eventual death being caused by pneumonia and influenza is between 0.029 and 0.030 for females and between 0.025 and 0.028 for males from birth to age 50. The calculated probabilities for each sex increase after this age, with probabilities for males increasing more rapidly than those for females. Based on the Michigan mortality experience of 1978-1980, by age 85 the chances of eventually dying from pneumonia and influenza are 0.051 for males and 0.044 for females (Figure 2.32).

Table 2.34

Age-Adjusted Pneumonia and Influenza Death Rates[1] by Race and Sex, Michigan[2] and United States Residents, 1970-1980[3]

Place	Year	All Races			White			Other Than White		
		Total	Male	Female	Total	Male	Female	Total	Male	Female
Mich.	1970	19.2	24.7	14.6	16.7	21.8	12.5	38.8	47.9	30.8
	1971	17.7	23.9	12.7	15.4	20.6	11.3	35.6	50.1	22.9
	1972	18.7	25.7	12.9	16.8	23.1	11.8	32.7	46.6	20.4
	1973	17.0	21.9	13.2	14.9	19.4	11.5	33.8	42.7	26.3
	1974	13.3	17.7	10.0	12.1	15.7	9.5	22.5	33.2	13.5
	1975	14.0	18.6	10.6	13.0	17.2	10.0	21.2	28.7	14.7
	1976	15.7	20.8	12.0	14.8	19.6	11.5	21.5	29.5	14.9
	1977	12.2	17.6	8.2	11.5	16.5	7.8	17.2	25.1	10.7
	1978	14.1	18.1	11.2	13.8	17.7	11.0	15.5	20.1	11.8
	1979	9.6	13.3	7.1	9.0	12.3	6.7	13.9	19.1	9.6
	1980	11.7	16.1	8.6	10.8	14.6	8.2	17.9	27.0	10.7
U.S.	1970	22.1	28.8	16.7	19.8	26.0	15.0	38.1	50.1	27.9
	1971	19.3	24.9	14.8	17.6	22.7	13.6	32.0	43.0	22.8
	1972	20.8	27.6	15.6	19.2	25.4	14.4	32.6	44.5	22.8
	1973	20.1	26.6	15.2	18.5	24.6	14.0	31.4	42.3	22.5
	1974	16.9	22.6	12.8	15.7	21.0	12.0	25.4	35.1	17.5
	1975	16.6	22.5	12.3	15.6	21.0	11.7	23.9	33.5	16.1
	1976	17.4	23.1	13.2	16.3	21.8	12.6	24.4	33.7	17.0
	1977	14.2	19.4	10.4	13.2	18.1	9.8	21.0	29.6	14.0
	1978	15.4	21.0	11.5	14.5	19.6	10.9	21.8	30.9	14.6
	1979	11.1[4]	---	---	---	---	---	---	---	---
	1980	12.6[4]	---	---	---	---	---	---	---	---

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1 - Based on age-specific death rates per 100,000 population in specified group. Computed by the direct method, using as the standard population the age distribution of the total population of the United States as enumerated in 1940; see Technical Notes.

2 - Rates for Michigan for 1970-1979 have been revised; see Technical Notes.

3 - The introduction in 1979 of the 9th Revision of the International Classification of Diseases for coding causes of death resulted in substantial changes in this category, making trend comparisons difficult. The estimated comparability ratio for this category is 0.9264. Note that comparability ratios were developed for comparing crude death rates, and they are not strictly applicable for comparing age-adjusted death rates. For further discussion of comparability ratios see Qualifications and Limitations of Data and Calculations.

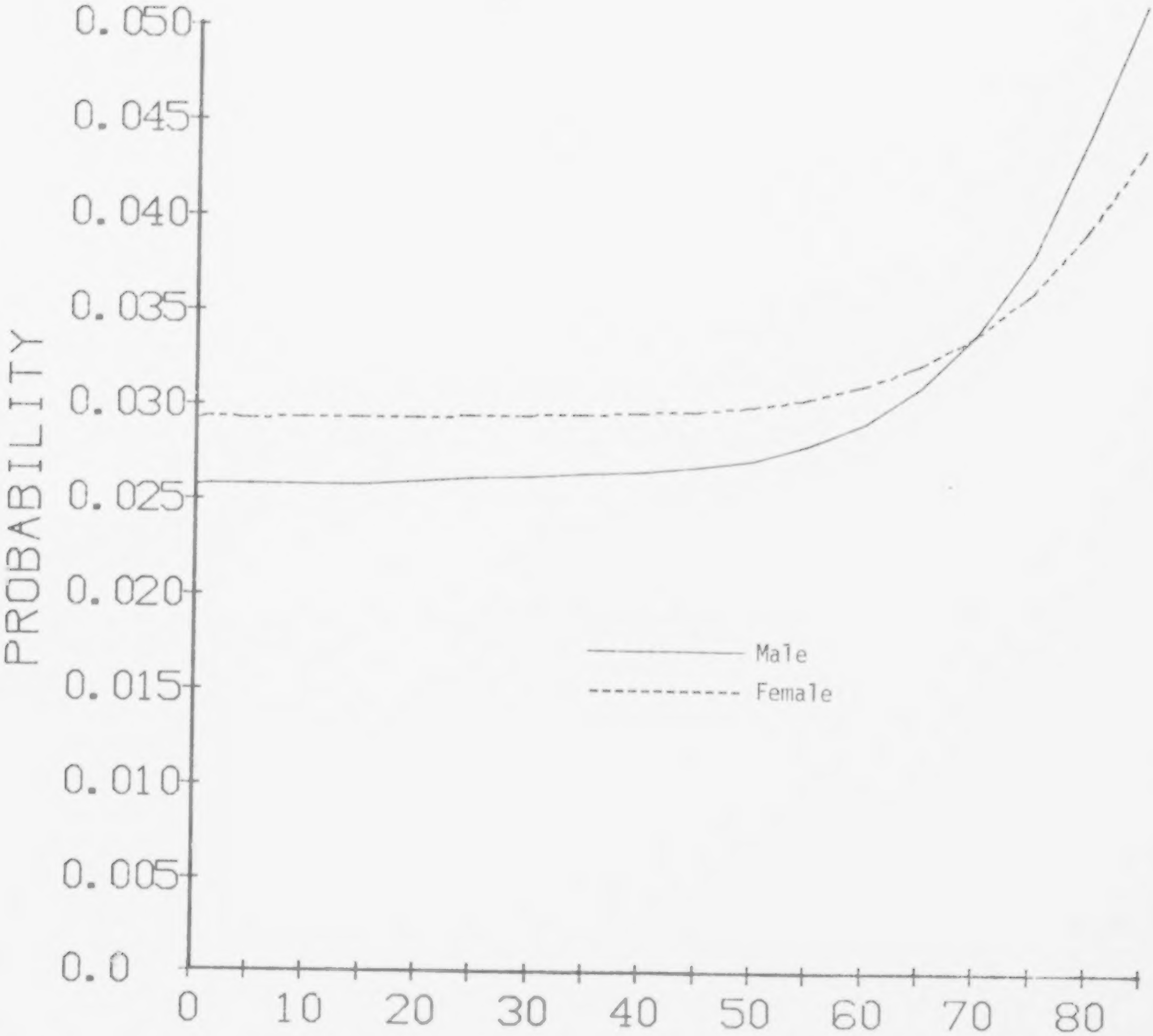
4 - Provisional.

Table 2.35
Deaths Due to Pneumonia and Influenza by Specific Cause, Michigan Residents, 1980

282 LIST NUMBER	CAUSE OF DEATH	NUMBER OF DEATHS	PERCENT
167	Pneumonia due to Other and Unspecified Organism	1,282	70.9
166	Bronchopneumonia, Organism Unspecified	269	14.9
165	Pneumococcal and Other Bacterial Pneumonia	132	7.3
168	Influenza	96	5.3
164	Viral Pneumonia	29	1.6
	TOTAL	1,808	100.0

1 - List of 282 Selected Causes developed by the National Center for Health Statistics for tabulation of Mortality Data coded by the 9th Revision of the International Classification of Diseases, WHO.

FIGURE 2.32 - Probability of Eventually Dying from Pneumonia and Influenza by Age and Sex, Michigan Residents, 1978-1980[1]



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[1] Note: Should comparisons be desired between this graph and a similar graph contained herein that pertains to some other specified cause of death, differences in scale may be encountered.

DIABETES MELLITUS

In 1980 diabetes mellitus caused the deaths of 1,467 Michigan residents. This is 18 more deaths than were caused by this disease in 1979. Deaths to females numbered 878 or 60 percent of all diabetes mellitus deaths. There were 589 diabetes mellitus deaths to males in 1980.

The median age at death for persons dying from diabetes mellitus was 73 years (Table 2.36). This is one year above the median age of all deaths. Males dying from this disease had a median age of 71 years, whereas the median for females was 74 years. The median for white males was 72 years compared to 75 years for white females. For other than white males the median was 64 years and that for other than white females 68 years.

Diabetes mellitus death rates by age, race, and sex are presented in Table 2.37. The diabetes mellitus crude death rate was 15.8 in 1980. The crude rate for females was 18.5, about 42 percent higher than the rate of 13.0 for males. When age-adjusted rates are examined, however, this differential in rates by sex is greatly diminished. The age-adjusted rate of 11.3 for females was slightly above that of males (11.0). Age-specific mortality rates for males and females presented in Table 2.37 are graphically displayed in Figure 2.33. Rates were similar for males and females, and increased steadily with advancing age.

Although the crude diabetes mellitus death rate for white persons was somewhat above that of other than white persons (16.0 compared to 14.8), the age-adjusted rate for the other than white population was 53 percent higher than that for the white population. The age-adjusted rate for other than white females was 72 percent above that of their white counterparts, while the age-adjusted rate for other than white males was 31 percent above that of white males. Age-specific rates for other than white persons were higher than those for white persons in all age groups below age 75 with a sufficient number of events to calculate rates, and also in the 85 years and over age group (Figure 2.34). The greatest relative differentials occurred for ages 45 through 64.

Diabetes mellitus death rates in Michigan rose steadily from a low of 9.3 in 1900 to a peak of 29.7 in 1949 (Figure 2.35). Adoption of the 6th revision of the International Classification of Diseases in 1950 caused a significant change in Michigan diabetes death rates. From 22.6 in 1950 the rate dipped somewhat then rose to a peak of 27.0 in 1966. Since then the rate has declined 41 percent to 15.8 in 1980. The lowest rate since the 6th revision of the ICD was adopted in 1950 was the rate of 15.7 in 1979. The slight increase in 1980 follows seven consecutive annual

TABLE 2.36
DEATHS DUE TO DIABETES MELLITUS BY AGE, RACE, AND SEX, MICHIGAN RESIDENTS, 1980

AGE IN YEARS	ALL RACES			WHITE			ALL OTHER			RACE NOT STATED		
	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE
UNDER 1	-	-	-	-	-	-	-	-	-	-	-	-
1-4	2	-	2	2	-	2	-	-	-	-	-	-
5-9	-	-	-	-	-	-	-	-	-	-	-	-
10-14	-	-	-	-	-	-	-	-	-	-	-	-
15-19	-	-	-	-	-	-	-	-	-	-	-	-
20-24	6	2	4	3	2	1	3	-	3	-	-	-
25-29	13	4	9	9	2	7	4	2	2	-	-	-
30-34	11	7	4	10	6	4	1	1	-	-	-	-
35-39	15	6	9	14	6	8	1	-	1	-	-	-
40-44	15	12	3	11	10	1	4	2	2	-	-	-
45-49	28	16	12	21	13	8	7	3	4	-	-	-
50-54	62	38	24	44	29	15	18	9	9	-	-	-
55-59	94	45	49	69	33	36	25	12	13	-	-	-
60-64	135	60	75	108	48	60	26	11	15	1	1	-
65-69	201	80	121	165	68	97	36	12	24	-	-	-
70-74	226	90	136	199	82	117	27	8	19	-	-	-
75-79	225	79	146	202	72	130	23	7	16	-	-	-
80-84	207	79	128	195	73	122	12	6	6	-	-	-
85-89	144	51	93	131	48	83	13	3	10	-	-	-
90+	83	20	63	77	19	58	6	1	5	-	-	-
NOT STATED	-	-	-	-	-	-	-	-	-	-	-	-
ALL AGES	1467	589	878	1260	511	749	206	77	129	1	1	-
MEDIAN AGE AT LAST BIRTHDAY	73	71	74	74	72	75	67	64	68	*	*	*

TABLE 2.37
DIABETES MELLITUS DEATH RATES BY AGE, RACE, AND SEX <1>, MICHIGAN RESIDENTS, 1980

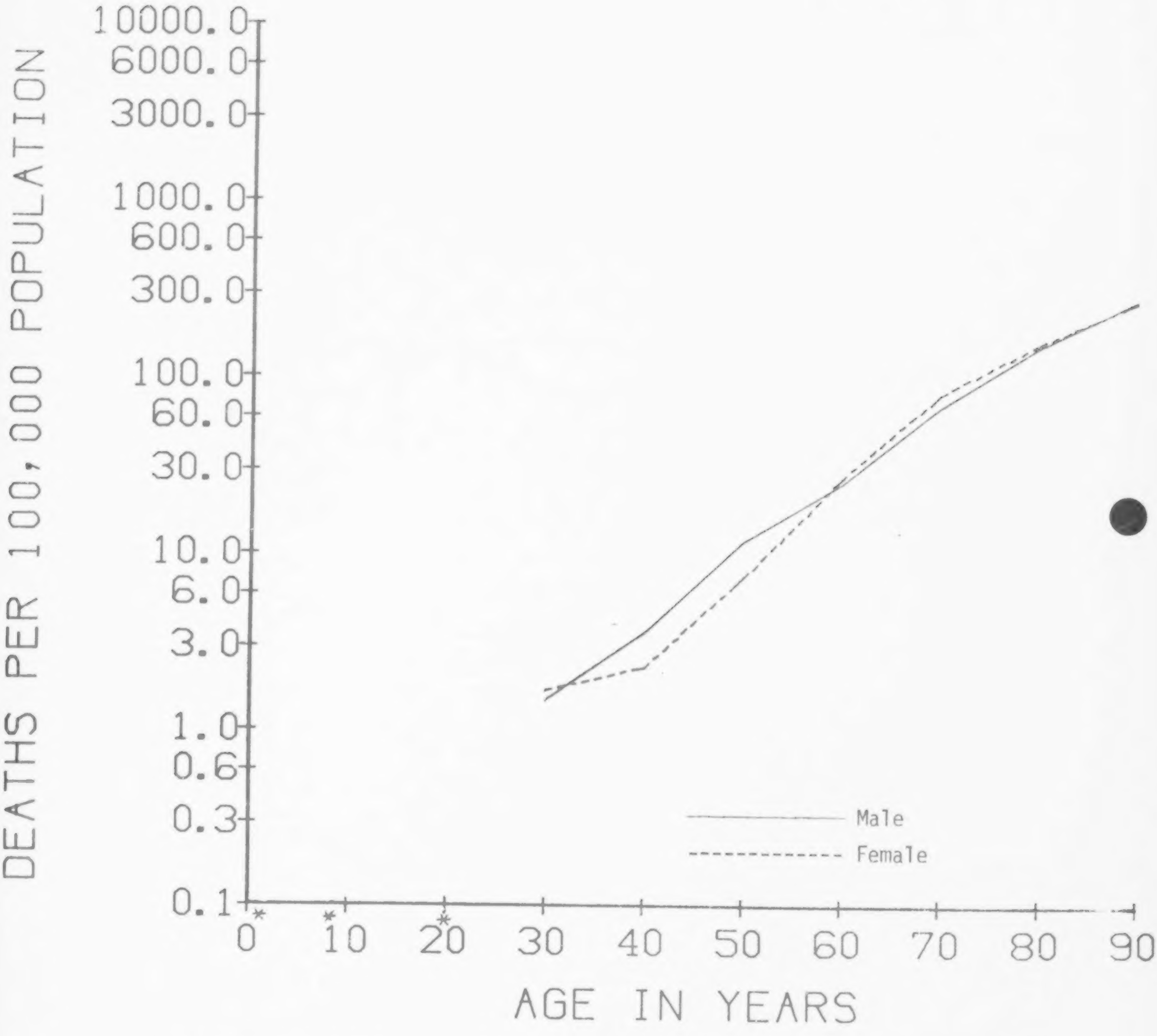
AGE	ALL RACES			WHITE			OTHER THAN WHITE		
	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE
ALL AGES-CRUDE RATE	15.8	13.0	18.5	16.0	13.3	18.6	14.8	11.6	17.8
UNDER 1 YEAR	*	*	*	*	*	*	*	*	*
1-14 YEARS	*	*	*	*	*	*	*	*	*
15-24 YEARS	.3	*	*	*	*	*	*	*	*
25-34 YEARS	1.6	1.5	1.7	1.5	1.3	1.7	2.1	*	*
35-44 YEARS	2.9	3.6	2.3	2.8	3.6	2.0	3.6	*	*
45-54 YEARS	9.7	11.9	7.5	8.0	10.6	5.5	21.1	21.9	20.4
55-64 YEARS	26.5	25.6	27.2	23.2	22.6	23.8	52.1	50.0	54.0
65-74 YEARS	76.7	69.5	82.4	73.2	68.7	76.7	106.2	75.8	130.5
75-84 YEARS	157.6	152.4	160.8	159.1	155.0	161.6	142.3	128.5	151.8
85 AND OVER	278.0	280.6	276.9	275.5	288.1	269.8	309.4	*	366.5
AGE-ADJUSTED RATE<2>	11.2	11.0	11.3	10.5	10.6	10.4	16.1	13.9	17.9

<1> DEATHS WITH SEX OR RACE NOT STATED WERE RANDOMLY ALLOCATED PRIOR TO COMPUTATION OF AGE-SPECIFIC DEATH RATES. DEATHS WITH AGE NOT STATED WERE INCLUDED IN THE CATEGORY 85 AND OVER.

<2> BASED ON AGE-SPECIFIC DEATH RATES PER 100,000 POPULATION IN SPECIFIED GROUP. COMPUTED BY THE DIRECT METHOD, USING AS THE STANDARD POPULATION THE AGE DISTRIBUTION OF THE TOTAL POPULATION OF THE UNITED STATES AS ENUMERATED IN 1940; SEE TECHNICAL NOTES.

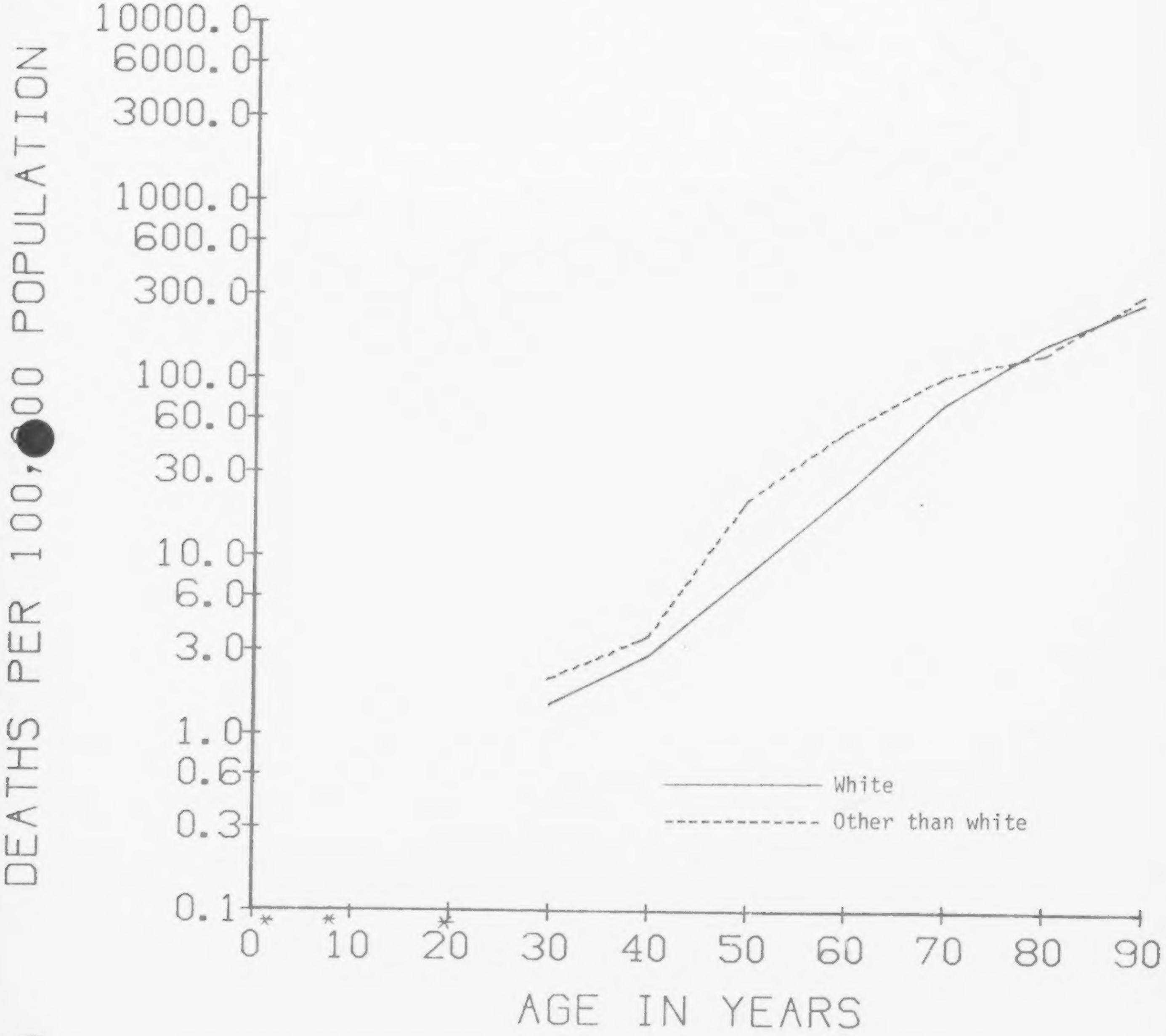
* RATE IS CONSIDERED STATISTICALLY UNRELIABLE.

FIGURE 2.33 - Age-Specific Diabetes Mellitus Death Rates[1] by Sex, Michigan Residents, 1980



[1] Note that death rates are shown on a logarithmic scale: vertical distances represent relative differences in rate rather than absolute differences

FIGURE 2.34 - Age-specific Diabetes Mellitus Death Rates[1] by Race, Michigan Residents, 1980



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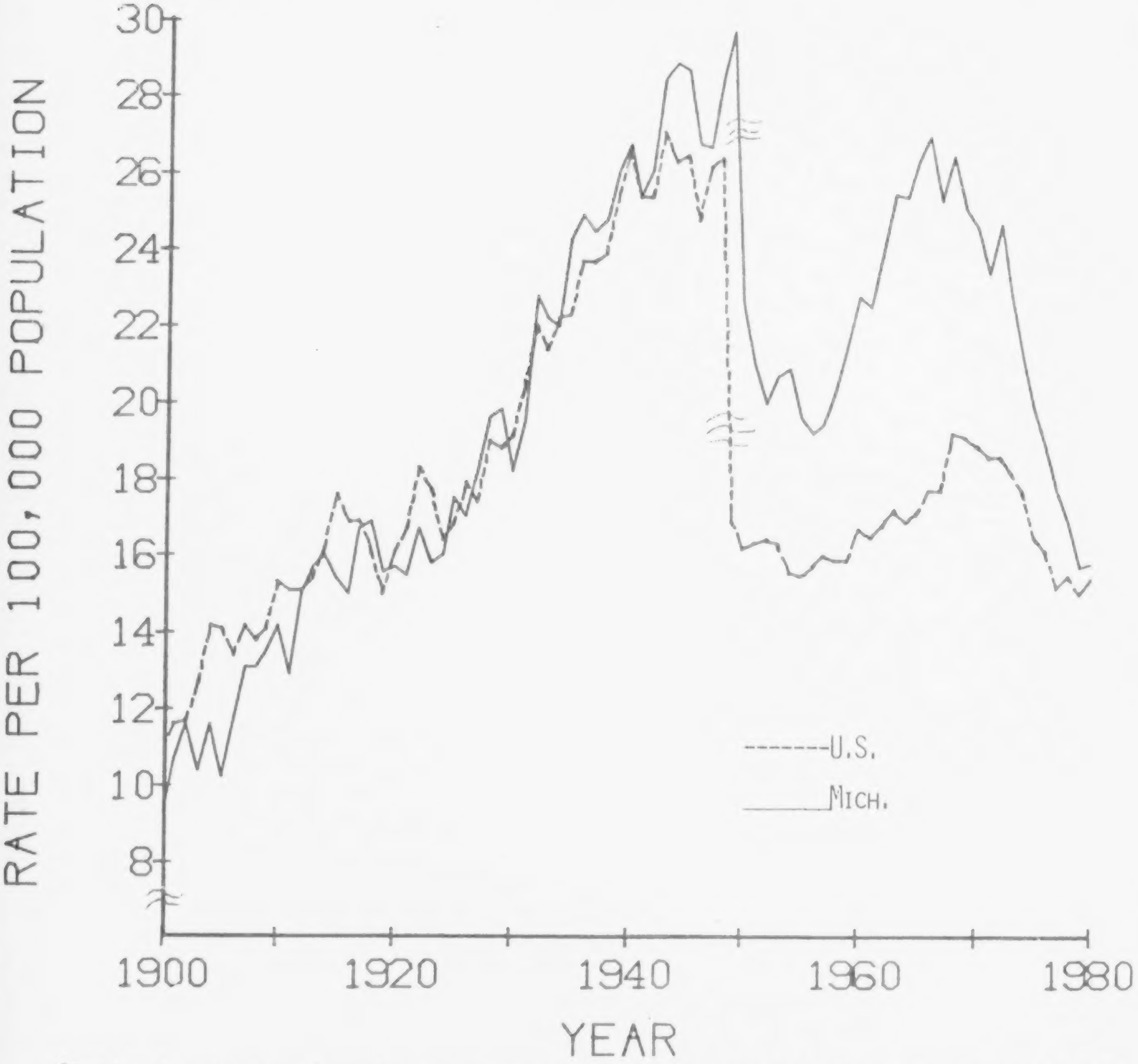
[1] Note that death rates are shown on a logarithmic scale: vertical distances represent relative differences in rate rather than absolute differences

FIGURE 2.35-DIABETES MELLITUS DEATH RATES, MICHIGAN AND UNITED STATES[1] 1900-1980[2]



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[1] National rates are from death registration states for 1900-1932 and the United States for 1933-1980. U.S. rate for 1980 is provisional.

[2] The comparability of diabetes mellitus death rates from the 5th revision of the ICDA coding procedures with those of the 6th revision is considered weak. The comparability ratio is estimated to be .55. The 6th revision was adopted in 1949 for national cause-of-death statistics and in 1950 for Michigan statistics. The comparability of diabetes mellitus disease death rates through the 6th, 7th, 8th, and 9th revisions (1949 to date nationally and 1950 to date in Michigan) is high. General comparison before and after these dates of adoption can be made but detailed study requires special consideration. See Technical Notes.

declines in the diabetes mellitus death rate. The national range in the first half of this century was from 11.0 in 1900 to 27.1 in 1943. The rate for the nation since 1949, though more stable than Michigan's rate, has tended to follow the same pattern. A peak of 19.2 was reached in 1968. Since that time the rate for the nation has declined by 20 percent to a provisional 15.4 in 1980. The lowest rate since 1949 for the United States was the provisional rate of 15.0 in 1979.

The diabetes mellitus death rate for the nation was generally above Michigan's rate for the first 25 or so years in this century. Since 1942, Michigan's rate has been above that of the nation. Through the 1960's the differential between the rates for Michigan and the United States was quite large. This has only recently started to diminish. In 1980 Michigan's rate (15.8) was 2.6 percent above the provisional rate of 15.4 for the United States.

Age-adjusted death rates for diabetes mellitus for the years 1970-1980 are presented in Table 2.38. These rates have generally declined both in Michigan and the United States for all population groups. The rate for the total population of Michigan has declined by 45 percent since 1970, and has fallen or remained the same each year since 1972. The rate for the U.S. has declined by 28 percent since 1970. In Michigan, rates for other than white persons experienced a greater absolute and relative decline than those for white persons. In 1970 the age-adjusted rate for other than white males was 46 percent above that for white males. In 1980 the differential was 31 percent. In 1970 the rate for other than white females was over twice that of white females. This differential was still 72 percent in 1980.

The declines in the age-adjusted rates for other than white persons were much greater in Michigan than those observed for these groups nationally. Michigan's rates for other than white persons were substantially higher than comparable rates for the nation in 1970, but have been about the same as those for the nation since 1974. Age-adjusted rates for white persons in Michigan also declined more sharply than comparable rates for the nation. However, they remained higher than those of the nation throughout the period.

In 1980 76.6 percent of all diabetes mellitus deaths were without mention of complication. Diabetes with renal manifestations caused 88 deaths, while diabetes with peripheral circulatory disorders resulted in an additional 69 deaths. There were 135 deaths in 1980 from diabetes with ketoacidosis or coma. These are deaths where a diabetic crisis was involved (Table 2.39).

Table 2.38

Age-Adjusted Diabetes Mellitus Death Rates[1] by Race and Sex, Michigan[2] and United States Residents, 1970-1980

Place	Year	All Races			White			Other Than White		
		Total	Male	Female	Total	Male	Female	Total	Male	Femal
Mich.	1970	20.2	20.8	19.8	18.8	19.9	17.7	34.3	29.1	39.4
	1971	18.9	17.4	20.1	17.5	16.6	18.1	31.0	23.6	37.5
	1972	19.6	18.7	20.2	18.2	17.7	18.5	31.7	27.2	35.8
	1973	18.0	17.4	18.2	16.7	16.4	16.8	27.9	25.1	30.1
	1974	16.2	16.0	16.3	15.7	15.8	15.6	19.6	17.2	21.7
	1975	14.9	14.8	14.9	14.2	14.3	14.0	20.6	19.3	21.8
	1976	13.8	13.7	13.8	12.8	12.7	12.7	22.1	21.8	22.4
	1977	12.9	13.3	12.5	12.2	12.7	11.6	19.1	18.5	19.7
	1978	12.1	12.3	11.8	11.1	11.8	10.4	20.0	16.1	23.0
	1979	11.2	11.1	11.2	10.8	11.3	10.3	14.2	10.1	17.5
	1980	11.2	11.0	11.3	10.5	10.6	10.4	16.1	13.9	17.9
U.S.	1970	14.1	13.5	14.4	12.9	12.7	12.8	25.2	20.4	29.3
	1971	13.8	13.2	14.2	12.4	12.4	12.4	27.5	21.7	32.4
	1972	13.6	13.2	13.9	12.2	12.3	12.1	26.0	21.2	30.1
	1973	13.2	12.9	13.3	11.8	12.0	11.6	25.3	21.1	28.6
	1974	12.5	12.2	12.7	11.4	11.5	11.2	23.4	18.8	27.1
	1975	11.6	11.4	11.6	10.4	10.7	10.2	21.7	17.9	24.6
	1976	11.1	10.9	11.1	10.0	10.2	9.7	21.0	17.5	23.7
	1977	10.4	10.5	10.3	9.4	9.8	9.0	19.5	16.3	22.0
	1978	10.4	10.5	10.3	9.4	9.8	9.1	19.0	16.3	21.0
	1979	9.9[3]	---	---	---	---	---	---	---	---
	1980	10.1[3]	---	---	---	---	---	---	---	---

1 - Based on age-specific death rates per 100,000 population in specified group. Computed by the direct method, using as the standard population the age distribution of the total population of the United States as enumerated in 1940; see Technical Notes.

2 - Rates for Michigan for 1970-1979 have been revised; see Technical Notes

3 - Provisional.

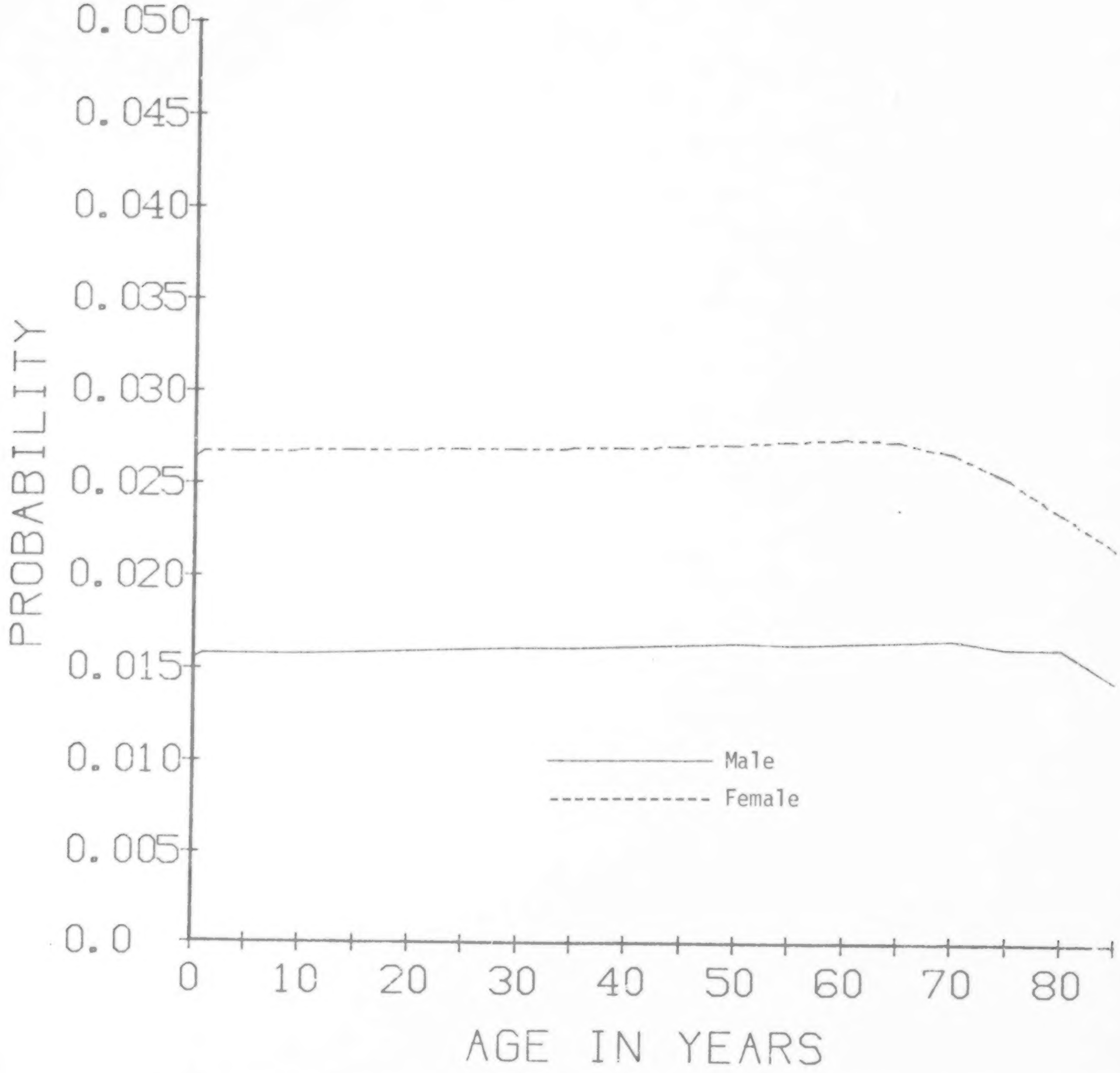
Table 2.39
Deaths Due to Diabetes Mellitus by Detailed Cause, Michigan Residents, 1980

ICD LIST[1] NUMBER	CAUSE OF DEATH	NUMBER OF DEATHS	PERCENT
250.0	Diabetes Mellitus without Mention of Complication	1,124	76.6
250.3	Diabetes with Renal Manifestations	88	6.0
250.1	Diabetes with Ketoacidosis	77	5.2
250.6	Diabetes with Peripheral Circulatory Disorders	69	4.7
250.2	Diabetes with Coma	58	4.0
250.7	Diabetes with Other Specified Manifestations	33	2.2
250.5	Diabetes with Neurological Manifestations	12	0.8
250.4	Diabetes with Ophthalmic Manifestations	6	0.4
	TOTAL	1,467	100.0

1 - Detailed List of the 9th Revision of the International Classification of Diseases, WHO.

At birth, the probability of eventual death due to diabetes mellitus is 0.016 for males and 0.026 for females (Figure 2.36). The probability of death from diabetes mellitus for females increases slightly from birth to age 60 and declines after that age. Females are less likely to eventually die from this cause at ages 75 and older than when they were born. Although probabilities for males are consistently below those for females, the pattern of change is similar to that for females. The peak probability for males is 0.017 at age 70.

FIGURE 2.36 - Probability of Eventually Dying from Diabetes Mellitus by Age and Sex, Michigan Residents, 1978-1980[1]



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[1] Note: Should comparisons be desired between this graph and a similar graph contained herein that pertains to some other specified cause of death, differences in scale may be encountered.

CHRONIC LIVER DISEASE AND CIRRHOSIS

The 8th leading cause of Michigan resident deaths in 1980 was chronic liver disease and cirrhosis. This category was termed cirrhosis of the liver prior to 1979. There were 1,362 deaths attributed to this category in 1980, of which 65.9 percent were to males.

The median age for deaths due to chronic liver disease and cirrhosis (57 years) was 15 years below that for deaths from all causes (Table 2.40). For deaths from this cause in 1980 the median age for males exceeded by 1 year that for females. The median ages at death for white males and females were 58 and 60 years, respectively. For other than white males and females the median ages at death were 51 and 50 years, respectively.

Death rates for chronic liver disease and cirrhosis by age, race, and sex are presented in Table 2.41. In 1980 both crude and age-adjusted rates for males were more than twice those for females. Age-specific rates for males ranged from 2.0 to 2.4 times those for females. The highest rate for males (69.8) was for the age group 55-64 years, while the highest rate for females was 30.5 for the age group 65-74 years (Figure 2.37).

The crude mortality rate for deaths due to chronic liver disease and cirrhosis for other than white persons was nearly twice that for white persons and the age-adjusted rate for other than white persons was 2.5 times the rate for white persons. The largest relative differential occurred in the 25-34 year age group, where the rate for other than white persons was 8 times that for white persons. The differentials steadily decreased with age, until the rate for white persons exceeded that for other than white persons in the 75-84 year age group. The highest age-specific rate for white persons was 45.3 deaths per 100,000 population in the age group 65-74 years. For other than white persons the peak rate (89.9) was observed for the age group 55-64 years (Figure 2.38).

Cirrhosis of the liver was the cause of death for 7.9 of every 100,000 Michigan residents in 1900. Death rates due to this cause rose to a peak of 13.1 in 1916, after which the relative frequency of cirrhosis deaths fell sharply, dropping to 7.4 in 1919. The Michigan rates held stable from this point until 1936 when they began increasing slowly. A peak of 12.4 was reached by 1948. The statistics for Michigan shown in Figure 2.39 after 1949 are not comparable with preceding years due to a revision of the underlying cause of death determination. By isolating the period 1950-1980, this problem can be ignored. Michigan's mortality rate for this disease doubled between 1950 and 1972, when the highest rate of the century was recorded

TABLE 2.40

DEATHS DUE TO CHRONIC LIVER DISEASE AND CIRRHOSIS BY AGE, RACE, AND SEX, MICHIGAN RESIDENTS, 1980

AGE IN YEARS	ALL RACES			WHITE			ALL OTHER			RACE NOT STATED		
	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE
UNDER 1	2	1	1	2	1	1	-	-	-	-	-	-
1-4	-	-	-	-	-	-	-	-	-	-	-	-
5-9	-	-	-	-	-	-	-	-	-	-	-	-
10-14	-	-	-	-	-	-	-	-	-	-	-	-
15-19	-	-	-	-	-	-	-	-	-	-	-	-
20-24	4	2	2	1	-	1	3	2	1	-	-	-
25-29	20	9	11	5	3	2	15	6	9	-	-	-
30-34	55	41	14	24	20	4	31	21	10	-	-	-
35-39	77	53	24	42	32	10	35	21	14	-	-	-
40-44	94	59	35	60	35	25	34	24	10	-	-	-
45-49	119	80	39	79	54	25	40	26	14	-	-	-
50-54	207	138	69	153	107	46	54	31	23	-	-	-
55-59	236	164	72	181	128	53	54	35	19	1	1	-
60-64	185	122	63	151	99	52	34	23	11	-	-	-
65-69	167	105	62	146	89	57	21	16	5	-	-	-
70-74	89	56	33	79	48	31	10	8	2	-	-	-
75-79	65	39	26	60	35	25	5	4	1	-	-	-
80-84	24	12	12	24	12	12	-	-	-	-	-	-
85-89	16	14	2	15	13	2	1	1	-	-	-	-
90+	2	2	-	2	2	-	-	-	-	-	-	-
NOT STATED	-	-	-	-	-	-	-	-	-	-	-	-
ALL AGES	1362	897	465	1024	678	346	337	218	119	1	1	-
MEDIAN AGE AT LAST BIRTHDAY	57	57	56	58	58	60	51	51	50	*	*	*

TABLE 2.41

DEATH RATES FOR DEATHS DUE TO CHRONIC LIVER DISEASE AND CIRRHOSIS, BY AGE, RACE, AND SEX <1>, MICHIGAN RESIDENTS, 1980

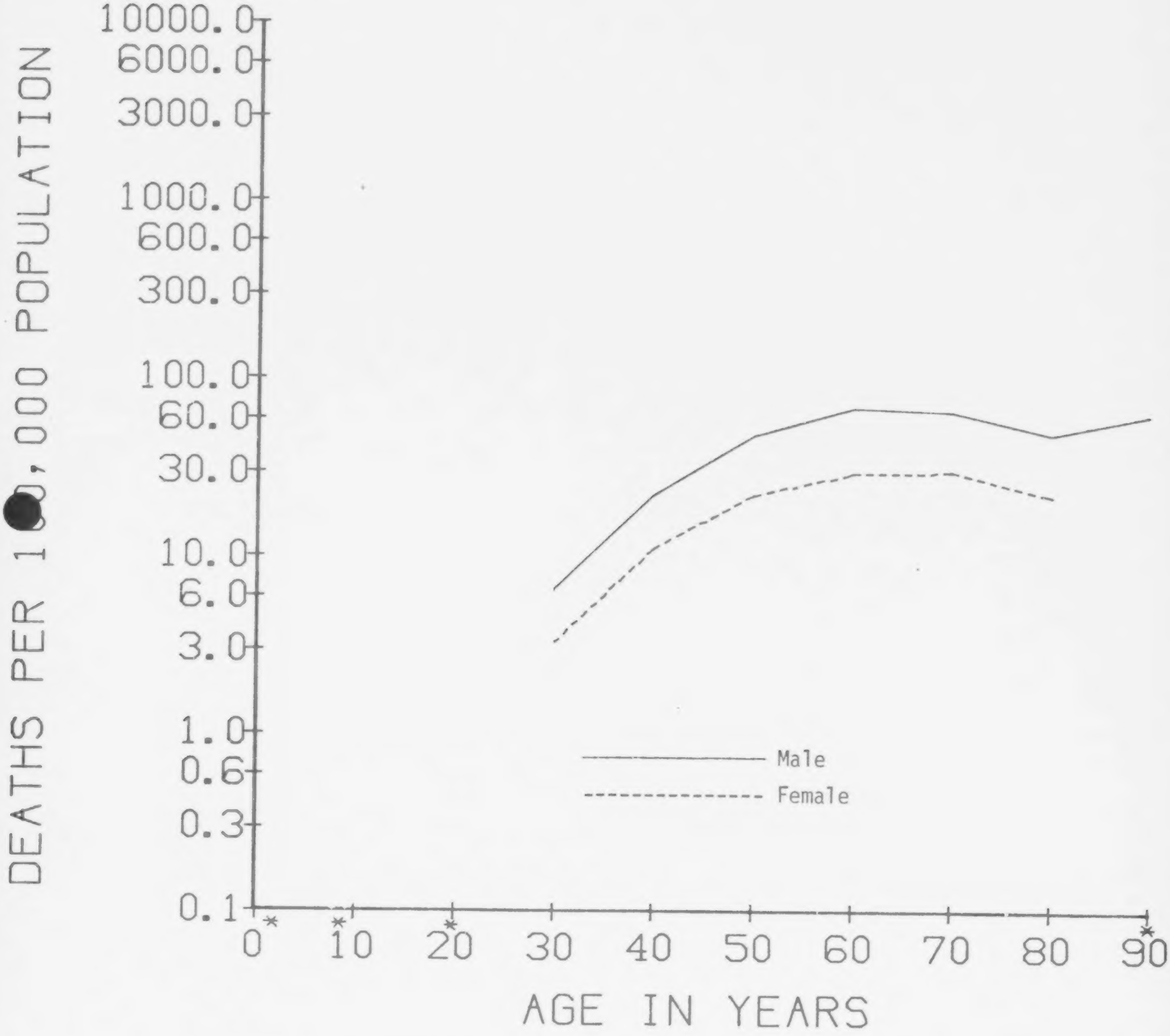
AGE	ALL RACES			WHITE			OTHER THAN WHITE		
	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE
ALL AGES-CRUDE RATE	14.7	19.9	9.8	13.0	17.6	8.6	24.2	32.8	16.4
UNDER 1 YEAR	*	*	*	*	*	*	*	*	*
1-14 YEARS	*	*	*	*	*	*	*	*	*
15-24 YEARS	*	*	*	*	*	*	*	*	*
25-34 YEARS	4.9	6.7	3.3	2.3	3.6	.9	19.3	24.5	14.9
35-44 YEARS	16.6	22.2	11.3	11.5	15.3	7.8	49.0	68.4	32.0
45-54 YEARS	35.0	48.2	22.6	28.6	40.5	17.1	79.4	104.1	58.1
55-64 YEARS	48.7	69.8	29.7	43.4	62.7	26.0	89.9	126.1	57.9
65-74 YEARS	46.0	65.8	30.5	45.3	62.8	31.5	52.3	91.0	21.2
75-84 YEARS	32.5	49.2	22.3	33.7	50.2	23.7	20.3	*	*
85 AND OVER	22.0	63.2	*	22.5	64.5	*	*	*	*
AGE-ADJUSTED RATE<2>	14.1	19.7	9.1	11.7	16.6	7.3	29.7	41.4	19.6

<1> DEATHS WITH SEX OR RACE NOT STATED WERE RANDOMLY ALLOCATED PRIOR TO COMPUTATION OF AGE-SPECIFIC DEATH RATES. DEATHS WITH AGE NOT STATED WERE INCLUDED IN THE CATEGORY 85 AND OVER.

<2> BASED ON AGE-SPECIFIC DEATH RATES PER 100,000 POPULATION IN SPECIFIED GROUP. COMPUTED BY THE DIRECT METHOD, USING AS THE STANDARD POPULATION THE AGE DISTRIBUTION OF THE TOTAL POPULATION OF THE UNITED STATES AS ENUMERATED IN 1940; SEE TECHNICAL NOTES.

* RATE IS CONSIDERED STATISTICALLY UNRELIABLE.

FIGURE 2.37 - Age-Specific Chronic Liver Disease and Cirrhosis Death Rates[1] by Sex, Michigan Residents, 1980



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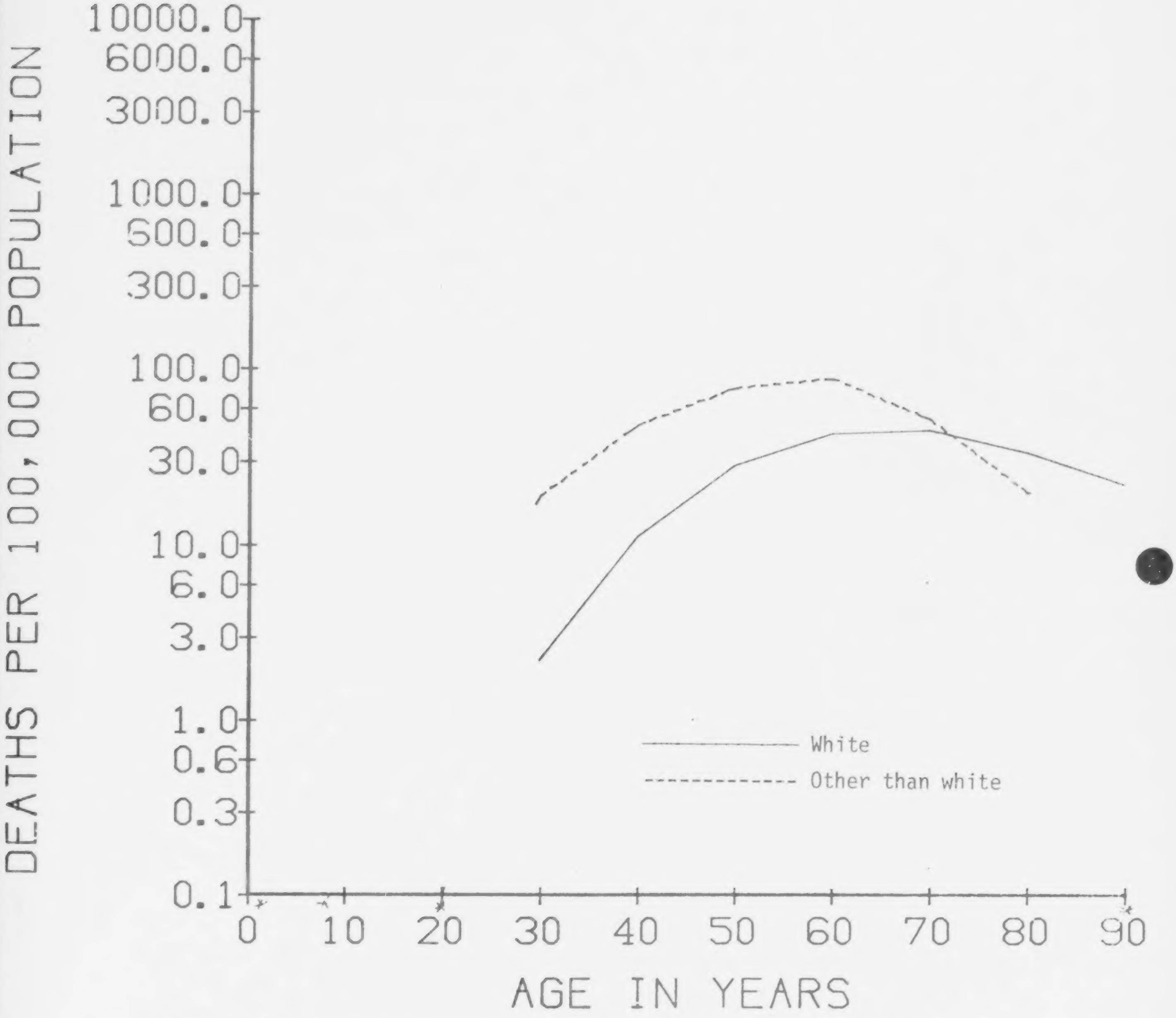
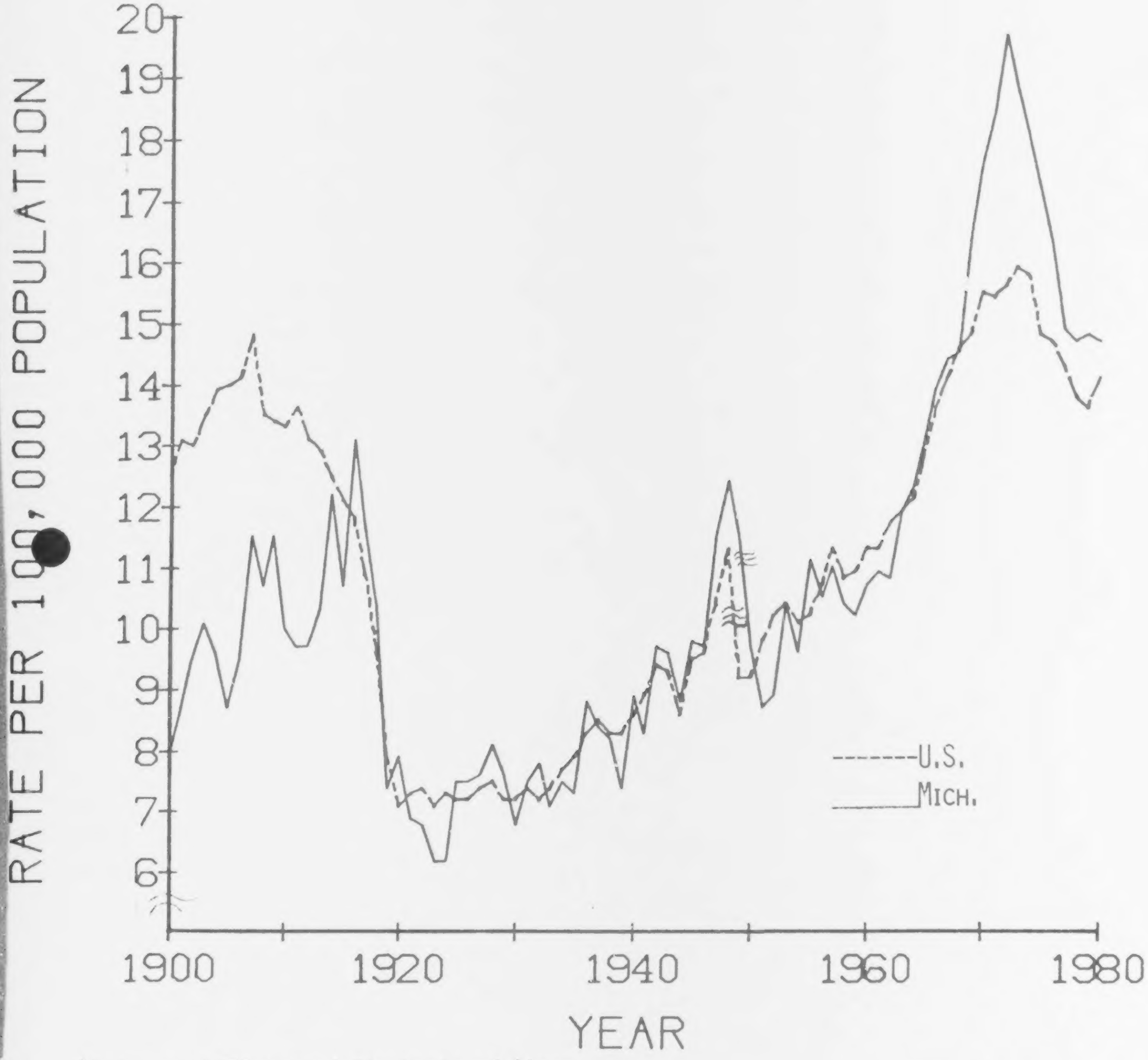
[1] Note that death rates are shown on a logarithmic scale: vertical distances represent relative differences in rate rather than absolute differences

FIGURE 2.38 - Age-Specific Chronic Liver Disease and Cirrhosis Death Rates[1] by Race, Michigan Residents, 1980



[1] Note that death rates are shown on a logarithmic scale: vertical distances represent relative differences in rate rather than absolute differences

FIGURE 2.39 - CHRONIC LIVER DISEASE AND CIRRHOSIS[1] DEATH RATES
MICHIGAN AND UNITED STATES RESIDENTS[2] 1900-1980[3]



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[1] Prior to 1979 termed Cirrhosis of liver.

[2] National rates are from death registration states for 1900-1932 and the United States for 1932-1980. U.S. rate for 1980 is provisional.

[3] The comparability of cirrhosis of the liver death rates from the 5th revision of the ICDA coding procedures with those of the 6th revision is considered weak. The comparability ratio is estimated to be .80. The 6th revision was adopted in 1949 for national cause-of-death statistics and in 1950 for Michigan statistics. The comparability of cirrhosis of the liver death rates through the 6th, 7th, 8th, and 9th revisions (1949 to date nationally and 1950 to date in Michigan) is high. General comparison before and after these dates of adoption can be made but detailed study requires special consideration. See Technical Notes.

(19.7). The rate of 14.7 in 1980 was 25 percent below the rate of 1972.

The cirrhosis of the liver mortality rate for the United States was well above Michigan's rate early in this century. The highest rate for the nation during the first half of the century occurred in 1907 (14.8). The rates for Michigan and the nation were similar from about 1916 through 1968. Between 1968 and 1972, rates for Michigan rose above those for the nation. The sharp drop in Michigan's rate since 1972 has brought the statistic for the state closer to the national figure. In 1980 the chronic liver disease and cirrhosis death rate of 14.7 for Michigan was 4.3 percent above the provisional rate of 14.1 for the nation.

Age-adjusted rates by sex and race for chronic liver disease and cirrhosis for the years 1970-1980 are recorded in Table 2.42. These rates generally peaked about 1972 in Michigan and have tended to decline since then. For the U.S. the increases observed in the early part of the decade were less pronounced, as were the declines after that time. The rates in Michigan for other than white males have been substantially higher than for all other groups, including the rates for other than white males observed nationally. The rates for other than white females in Michigan have also been considerably higher than the comparable rates for the nation. Rates for white males and females in Michigan remained slightly higher in 1978 than rates for these groups nationally. The age-adjusted rate for the total population of Michigan in 1980 was 11.9 percent above the provisional rate for the United States.

Cirrhosis of the liver without mention of alcohol was the most frequently reported cause of deaths due to chronic liver disease and cirrhosis in 1980, resulting in 686 deaths (Table 2.43). The second largest category was alcoholic cirrhosis of the liver with 351 deaths. There were 154 deaths attributed to other chronic nonalcoholic liver disease. Including deaths due to alcoholic cirrhosis of the liver, alcoholic fatty liver, acute alcoholic hepatitis, and unspecified alcoholic liver damage, there were 467 deaths with mention of alcohol attributed to the category of chronic liver disease and cirrhosis. The total number of alcohol-related deaths in 1980 was 632. This figure includes 19 deaths due to alcoholic psychoses, 109 due to alcohol dependence syndrome, 32 due to nondependent abuse of alcohol, and an additional 5 deaths due to accidental poisoning by alcohol. It should be noted that these numbers do not include deaths from motor vehicle and other accidents in which alcohol was involved.

The probability of eventually dying from chronic liver disease and cirrhosis, based upon Michigan mortality data from the years 1978-1980, is displayed in Figure 2.40 by age

Table 2.42

Age-Adjusted Death Rates[1] for Deaths Due to Chronic Liver Disease and Cirrhosis by Race and Sex, Michigan[2] and United States Residents, 1970-1980

Place	Year	All Races			White			Other Than White		
		Total	Male	Female	Total	Male	Female	Total	Male	Female
Mich.	1970	17.7	24.9	11.2	15.6	22.0	9.7	34.8	48.3	22.5
	1971	18.7	25.6	12.3	16.2	22.2	10.8	37.4	52.8	23.6
	1972	19.8	27.8	12.5	17.0	24.5	10.3	40.7	54.2	28.5
	1973	18.8	26.7	11.7	16.3	23.3	10.1	37.0	52.7	23.0
	1974	17.9	25.8	10.8	14.8	21.5	8.7	40.9	58.2	25.4
	1975	17.1	23.9	11.1	14.4	20.3	9.2	36.2	50.2	23.8
	1976	15.9	23.0	9.6	13.6	19.9	8.1	31.9	45.5	19.8
	1977	14.5	20.6	9.1	12.1	17.7	7.2	30.6	41.2	21.2
	1978	14.2	19.6	9.3	12.1	16.9	7.9	28.5	39.1	19.3
	1979	14.2	21.1	8.2	11.5	17.2	6.4	32.5	47.8	19.3
	1980	14.1	19.7	9.1	11.7	16.6	7.3	29.7	41.4	19.6
U.S.	1970	14.7	20.2	9.8	13.4	18.8	8.7	23.8	31.3	17.4
	1971	14.7	20.4	9.8	13.5	18.9	8.8	24.3	32.2	17.5
	1972	14.9	20.8	9.6	13.5	19.1	8.6	25.4	35.1	17.2
	1973	15.0	20.9	9.9	13.7	19.3	8.7	25.3	33.9	18.0
	1974	14.8	20.7	9.7	13.4	19.0	8.6	25.0	34.0	17.4
	1975	13.8	19.5	8.9	12.6	17.9	7.9	23.1	32.1	15.5
	1976	13.6	19.1	8.7	12.3	17.5	7.7	23.1	32.3	15.4
	1977	13.1	18.4	8.4	11.8	16.7	7.5	22.5	31.4	15.0
	1978	12.5	17.6	8.1	11.3	16.1	7.2	21.0	29.1	14.3
	1979	12.3[3]	---	---	---	---	---	---	---	---
	1980	12.6[3]	---	---	---	---	---	---	---	---

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1 - Based on age-specific death rates per 100,000 population in specified group. Computed by the direct method, using as the standard population the age distribution of the total population of the United States as enumerated in 1940; see Technical Notes.

2 - Rates for Michigan for 1970-1979 have been revised; see Technical Notes.

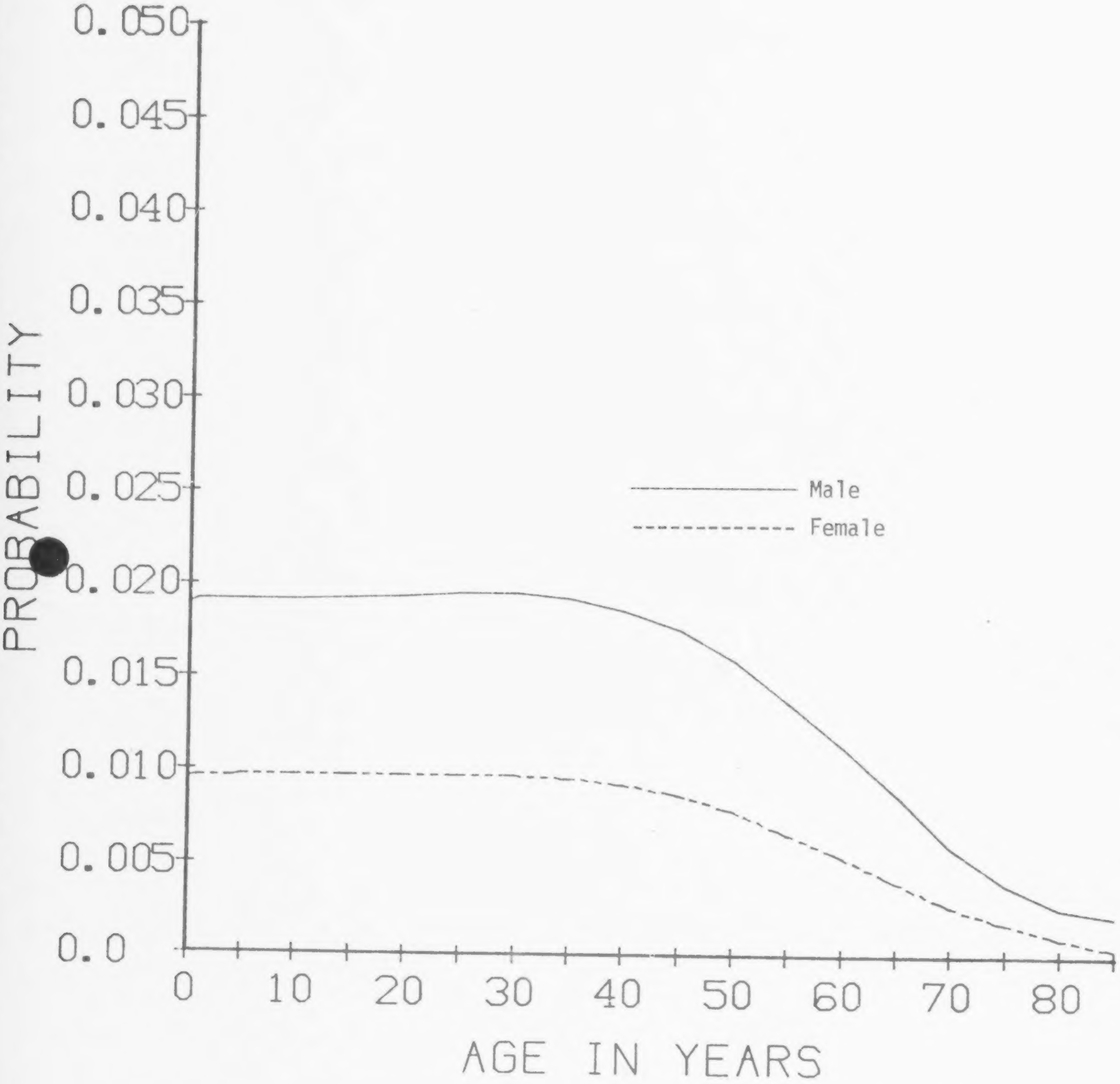
3 - Provisional.

Table 2.43
Deaths Due to Chronic Liver Disease and Cirrhosis by Detailed Cause, Michigan Residents, 1980

ICD LIST NUMBER[1]	CAUSE OF DEATH	NUMBER OF DEATHS	PERCENT
571.5	Cirrhosis of Liver Without Mention of Alcohol	686	50.4
571.2	Alcoholic Cirrhosis of Liver	351	25.8
571.8	Other Chronic Nonalcoholic Liver Disease	154	11.3
571.3	Alcoholic Liver Damage, Unspecified	58	4.3
571.0	Alcoholic Fatty Liver	30	2.2
571.1	Acute Alcoholic Hepatitis	28	2.1
571.4	Chronic Hepatitis	27	2.0
571.6	Biliary Cirrhosis	21	1.5
571.9	Unspecified Chronic Liver Disease Without Mention of Alcohol	7	0.5
	TOTAL	1,362	100.0

1 - Detailed List of the 9th Revision of the International Classification of Diseases, WHO.

FIGURE 2.40 - Probability of Eventually Dying from Chronic Liver Disease and Cirrhosis by Age and Sex, Michigan Residents, 1978-1980[1]



[1] Note: Should comparisons be desired between this graph and a similar graph contained herein that pertains to some other specified cause of death, differences in scale may be encountered.

and sex. This graph reveals that the risk for males of dying from a disease in this category is consistently about double that for females. At birth, males have a probability of 0.019 of eventually dying from chronic liver disease and cirrhosis. For females the probability is 0.010. These probabilities remain nearly constant for both sexes through age 40, whereupon the threat of death due to these diseases diminishes with advancing age. By age 85 the risk is 0.002 for males and less than 0.001 for females.

ATHEROSCLEROSIS

There were a total of 1,254 Michigan resident deaths attributed to atherosclerosis in 1980, making this cause the 9th leading cause of death in the state. Atherosclerosis is the term under the 9th Revision (adopted in 1979) for the category most nearly comparable to arteriosclerosis under the 8th Revision. Six out of every ten deaths due to this cause in 1980 were to females, while 45.4 percent of all deaths were to females. Only 80 of the 1,254 deaths were to other than white persons. This is 6.4 percent of all atherosclerosis deaths, while 13.2 percent of all deaths were to other than white persons.

The majority of the atherosclerosis deaths were to persons of advanced ages. The median age of all deaths resulting from this disease was 85 years. The median age at death for males was 3 years lower than that for females, and the median for other than white persons was 4 years lower than that for white persons (Table 2.44).

Atherosclerosis resulted in 13.5 deaths per 100,000 Michigan residents in 1980. This represents a 6.3 percent increase from the rate of 12.7 in 1979. Deaths to females from this disease were relatively more frequent than for males with crude mortality rates of 15.9 and 11.0 respectively (Table 2.45). The age-adjusted rate for males, however, was 25 percent higher than that for females. Age-specific atherosclerosis death rates rose sharply beyond age 74 for persons of both sexes. Rates for males were above those for females beyond age 54 (Figure 2.41).

The crude rate for deaths due to atherosclerosis for white persons was 2.6 times that for other than white persons. However, when the differing age distributions of the two groups are considered, the differential is greatly reduced. The age-adjusted rate of 6.7 for whites is 29 percent above the rate of 5.2 for other than white persons. Age-specific rates were higher for white persons beyond age 64. The largest differential was observed in the 75-84 year age group, where the rate for white persons was 63 percent above that of other than white persons (Figure 2.42).

Inspection of arteriosclerosis death rates since 1900 is far less informative than study of the historical data for other causes of death. The classification of this disease has been significantly altered several times since the inception of the ICD codes (see footnote of Figure 2.43). What can be seen in Figure 2.43 is a strong rise between 1900 and 1912. Rates in Michigan and the nation then stabilized and began declining. A coding revision in 1930 then breaks comparability with 1929 rates. The arteriosclerosis death rates from 1930 through 1948 show no clear direction. From 1950 through 1967 the rates for the

TABLE 2.44
DEATHS DUE TO ATHEROSCLEROSIS BY AGE, RACE, AND SEX, MICHIGAN RESIDENTS, 1980

AGE IN YEARS	ALL RACES			WHITE			ALL OTHER			RACE NOT STATED		
	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE
UNDER 1	-	-	-	-	-	-	-	-	-	-	-	-
1-4	-	-	-	-	-	-	-	-	-	-	-	-
5-9	-	-	-	-	-	-	-	-	-	-	-	-
10-14	-	-	-	-	-	-	-	-	-	-	-	-
15-19	-	-	-	-	-	-	-	-	-	-	-	-
20-24	-	-	-	-	-	-	-	-	-	-	-	-
25-29	-	-	-	-	-	-	-	-	-	-	-	-
30-34	2	2	-	2	2	-	-	-	-	-	-	-
35-39	2	1	1	1	1	-	1	-	1	-	-	-
40-44	1	1	-	1	1	-	-	-	-	-	-	-
45-49	4	3	1	3	3	-	1	-	1	-	-	-
50-54	7	2	5	6	2	4	1	-	1	-	-	-
55-59	15	9	6	12	8	4	3	1	2	-	-	-
60-64	21	11	10	16	7	9	5	4	1	-	-	-
65-69	43	25	18	39	23	16	4	2	2	-	-	-
70-74	115	56	59	104	51	53	11	5	6	-	-	-
75-79	147	68	79	136	63	73	10	5	5	1	-	1
80-84	257	119	138	244	112	132	13	7	6	-	-	-
85-89	315	116	199	298	111	187	17	5	12	-	-	-
90+	325	86	239	311	82	229	14	4	10	-	-	-
NOT STATED	-	-	-	-	-	-	-	-	-	-	-	-
ALL AGES	1254	499	755	1173	466	707	80	33	47	1	-	1
MEDIAN AGE AT LAST BIRTHDAY	85	83	86	85	83	86	81	79	83	*	*	*

TABLE 2.45
ATHEROSCLEROSIS DEATH RATES BY AGE, RACE, AND SEX <1>, MICHIGAN RESIDENTS, 1980

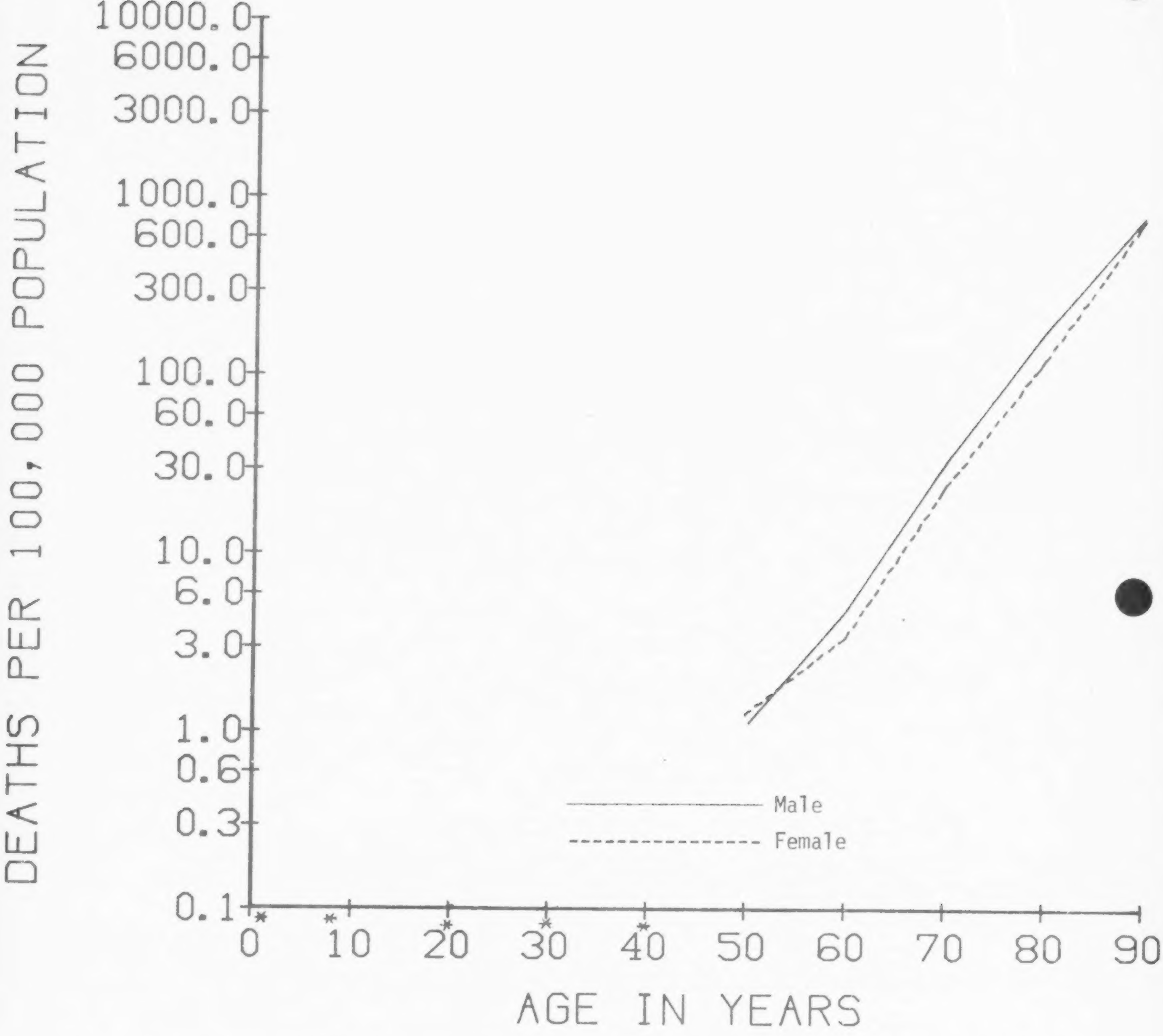
AGE	ALL RACES			WHITE			OTHER THAN WHITE		
	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE
ALL AGES-CRUDE RATE	13.5	11.0	15.9	14.9	12.1	17.6	5.8	5.0	6.5
UNDER 1 YEAR	*	*	*	*	*	*	*	*	*
1-14 YEARS	*	*	*	*	*	*	*	*	*
15-24 YEARS	*	*	*	*	*	*	*	*	*
25-34 YEARS	*	*	*	*	*	*	*	*	*
35-44 YEARS	*	*	*	*	*	*	*	*	*
45-54 YEARS	1.2	1.1	1.0	1.1	1.3	*	*	*	*
55-64 YEARS	4.2	4.9	3.5	3.7	4.1	3.2	8.2	10.9	*
65-74 YEARS	28.4	33.1	24.7	28.8	33.9	24.7	25.3	26.5	24.3
75-84 YEARS	147.4	180.4	127.3	152.7	187.1	132.1	93.5	118.7	75.9
85 AND OVER	783.8	798.2	777.3	806.5	829.8	796.1	504.8	439.5	537.5
AGE-ADJUSTED RATE<2>	6.6	7.5	6.0	6.7	7.8	6.1	5.2	5.4	5.0

<1> DEATHS WITH SEX OR RACE NOT STATED WERE RANDOMLY ALLOCATED PRIOR TO COMPUTATION OF AGE-SPECIFIC DEATH RATES. DEATHS WITH AGE NOT STATED WERE INCLUDED IN THE CATEGORY 85 AND OVER.

<2> BASED ON AGE-SPECIFIC DEATH RATES PER 100,000 POPULATION IN SPECIFIED GROUP. COMPUTED BY THE DIRECT METHOD, USING AS THE STANDARD POPULATION THE AGE DISTRIBUTION OF THE TOTAL POPULATION OF THE UNITED STATES AS ENUMERATED IN 1940; SEE TECHNICAL NOTES.

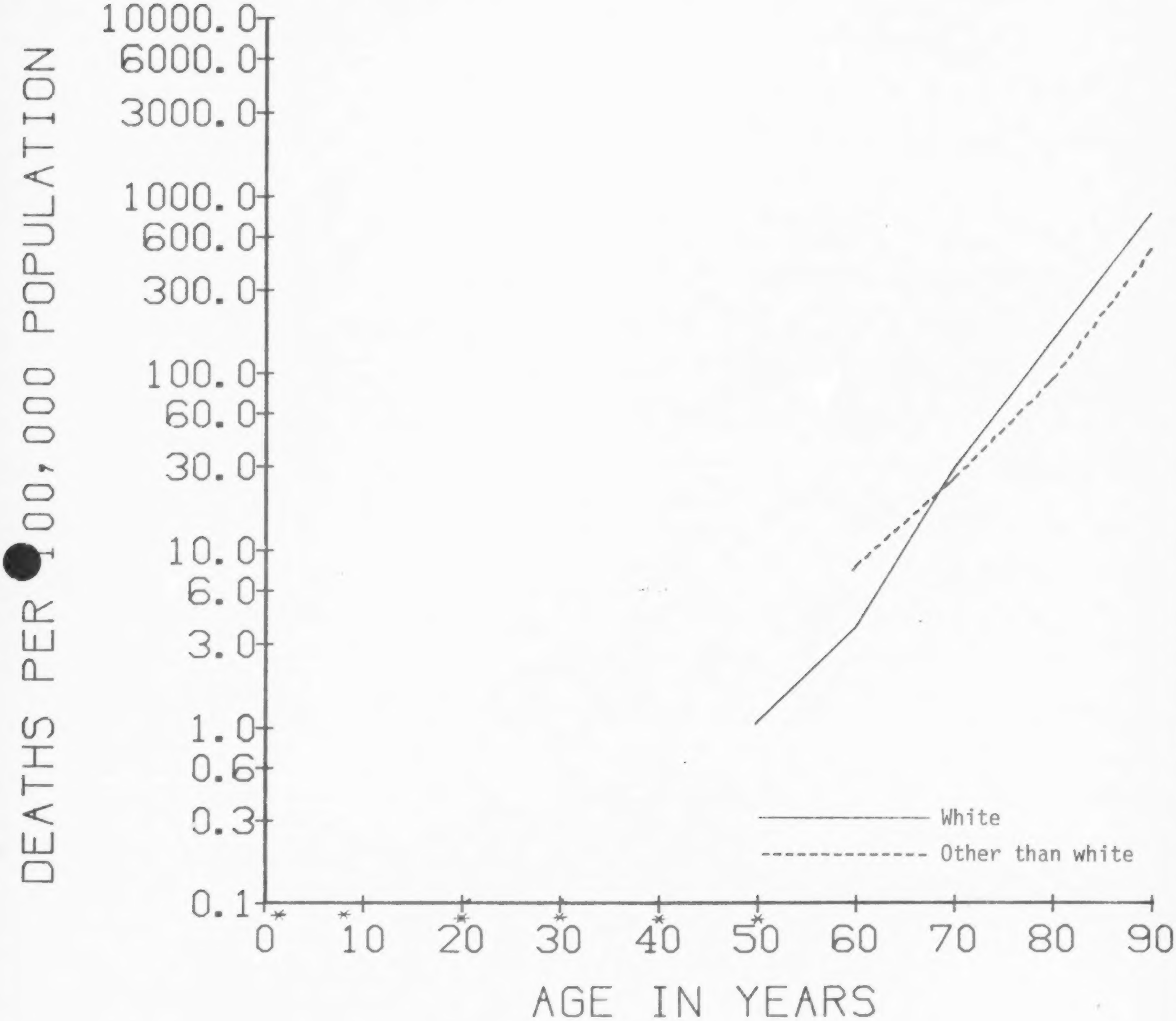
* RATE IS CONSIDERED STATISTICALLY UNRELIABLE.

FIGURE 2.41 - Age-Specific Atherosclerosis Death Rates[1] by Sex, Michigan Residents, 1980



[1] Note that death rates are shown on a logarithmic scale: vertical distances represent relative differences in rate rather than absolute differences

FIGURE 2.42 - Age-Specific Atherosclerosis Death Rates[1] by Race,
Michigan Residents, 1980



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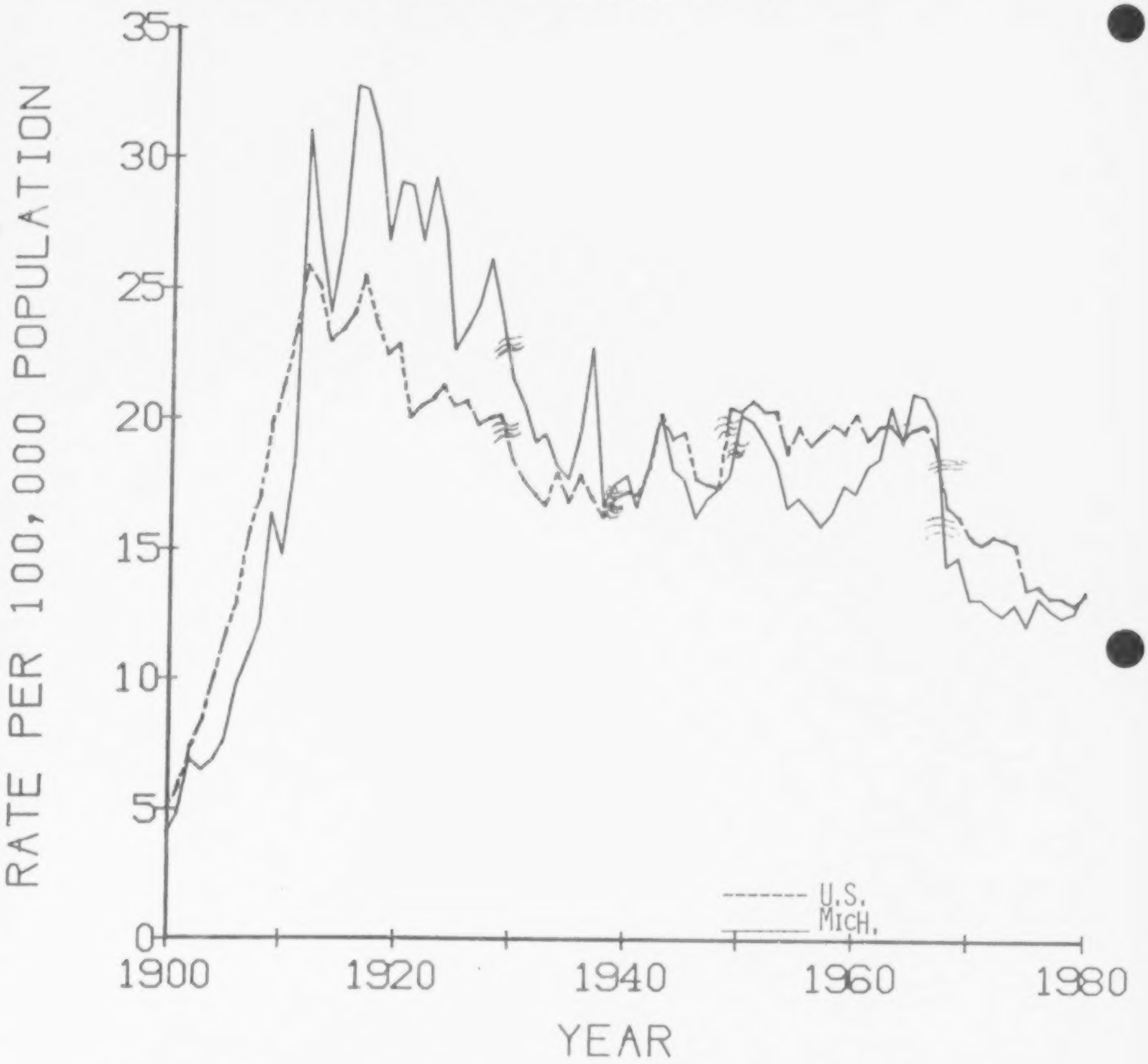
[1] Note that death rates are shown on a logarithmic scale: vertical distances represent relative differences in rate rather than absolute differences

FIGURE 2.43 - ATHEROSCLEROSIS[1] DEATH RATES, MICHIGAN AND UNITED STATES RESIDENTS,[2] 1900-1980[3]



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[1] Prior to 1979 termed Arteriosclerosis

[2] National rates are from death registration states for 1900-1932 and the United States for 1933-1980. U.S. rate for 1980 is provisional.

[3] Although Michigan and United States arteriosclerosis death rates are comparable for any given year, changes in the International Classification of Diseases over the years have made historic comparison of these rates extremely difficult. Comparability breaks are especially pronounced in the 1930, 1939, 1949 and 1968 revisions. Analysis of arteriosclerosis death rates over the time period 1900-19 requires detailed study to maintain comparability.

nation held fairly stable while in Michigan the rates dropped and then returned to national levels. From 1968 through 1979 the death rates due to arteriosclerosis in Michigan were below national rates. In 1980 the Michigan rate of 13.5 slightly exceeded the provisional rate of 13.4 for the nation.

Age-adjusted atherosclerosis death rates have declined for all population groups in both Michigan and the United States since 1970 (Table 2.46). The rates for white Michigan residents were quite similar to those for the nation, while Michigan's rates for other than white persons were substantially below the comparable rates for the nation. Rates for other than white persons were markedly lower than those for white persons in Michigan and somewhat lower in the nation.

Nearly all atherosclerosis deaths are reported as generalized and/or unspecified as to type. Only 67 of the 1,254 deaths were in other classifications. Of these, 63 were attributed to atherosclerosis of arteries of the extremities (Table 2.47).

The 1978 through 1980 mortality data for Michigan indicate that females are more likely to eventually die from atherosclerosis than males. At birth, the likelihood for females is 0.028, while for males it is 0.015. These probabilities rise slowly through age 50 and increase rapidly beyond that age. By age 85, the probability of eventually dying from atherosclerosis is 0.050 for females and 0.041 for males (Figure 2.44).

Table 2.46

Age-Adjusted Atherosclerosis Death Rates[1] by Race and Sex, Michigan[2] and United States Residents, 1970-1980[3]

Place	Year	All Races			White			Other Than White		
		Total	Male	Female	Total	Male	Female	Total	Male	Female
Mich.	1970	8.1	8.9	7.4	8.2	9.1	7.5	6.2	6.3	5.9
	1971	7.9	9.0	7.1	8.2	9.3	7.3	4.5	4.6	4.4
	1972	7.4	8.7	6.4	7.6	9.0	6.6	4.0	4.0	4.0
	1973	7.2	8.4	6.3	7.5	8.8	6.5	3.9	3.4	4.4
	1974	7.3	8.1	6.7	7.6	8.5	6.9	3.9	3.9	3.9
	1975	6.7	7.5	6.0	6.9	7.8	6.2	4.1	4.9	3.4
	1976	7.0	8.4	6.0	7.3	8.9	6.2	2.8	3.3	2.5
	1977	6.6	7.5	6.0	6.9	7.8	6.2	3.4	3.4	3.5
	1978	6.4	7.2	5.8	6.6	7.4	6.0	4.0	4.7	3.5
	1979	6.3	7.1	5.7	6.4	7.2	5.8	5.2	6.1	4.5
	1980	6.6	7.5	6.0	6.7	7.8	6.1	5.2	5.4	5.0
U.S.	1970	8.4	9.5	7.5	8.4	9.6	7.5	8.2	9.1	7.5
	1971	8.2	9.0	7.6	8.3	9.1	7.6	7.9	8.4	7.5
	1972	8.2	9.3	7.4	8.2	9.3	7.4	8.4	9.6	7.5
	1973	8.0	8.9	7.3	8.0	9.0	7.2	7.8	8.5	7.2
	1974	7.6	8.6	6.9	7.6	8.7	6.9	7.3	8.2	6.6
	1975	6.6	7.5	5.9	6.6	7.5	5.9	6.1	7.0	5.4
	1976	6.4	7.3	5.8	6.5	7.4	5.8	5.7	6.2	5.3
	1977	6.2	7.1	5.5	6.2	7.2	5.5	5.7	6.4	5.1
	1978	6.0	6.8	5.3	6.0	6.9	5.4	5.6	6.2	5.0
	1979	5.6[4]	---	---	---	---	---	---	---	---
	1980	5.8[4]	---	---	---	---	---	---	---	---

1 - Based on age-specific death rates per 100,000 population in specified group. Computed by the direct method, using as the standard population the age distribution of the total population of the United States as enumerated in 1940; see Technical Notes.

2 - Rates for Michigan for 1970-1979 have been revised; see Technical Notes.

3 - The introduction in 1979 of the 9th Revision of the International Classification of Diseases for coding causes of death resulted in substantial changes in this category, making trend comparisons difficult. The estimated comparability ratio for this category is 1.0649. Note that comparability ratios were developed for comparing crude death rates, and they are not strictly applicable for comparing age-adjusted death rates. For further discussion of comparability ratios see Qualifications and Limitations of Data and Calculations.

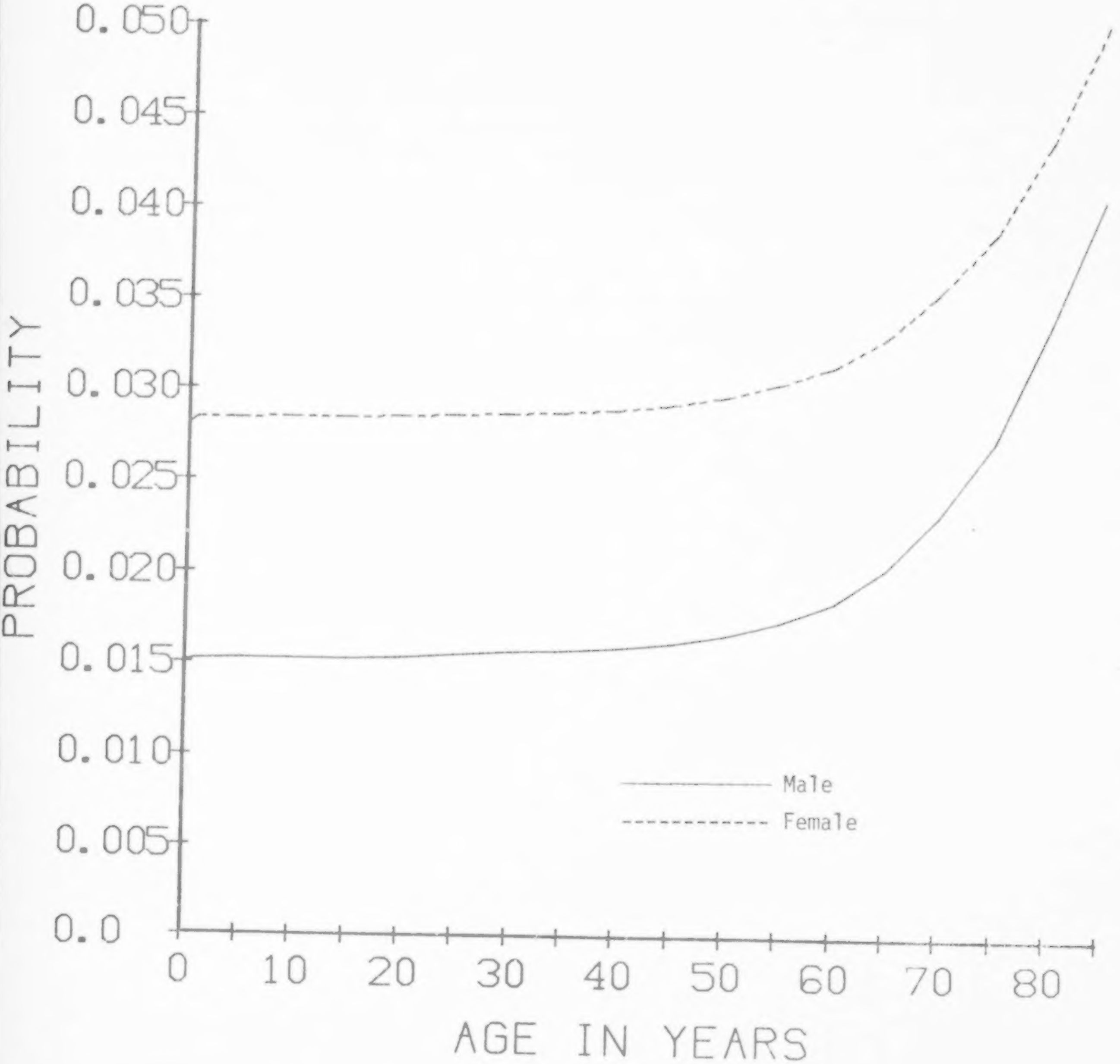
4 - Provisional.

Table 2.47
Deaths Due to Atherosclerosis by Detailed Cause, Michigan Residents, 1980

ICD LIST[1] NUMBER	CAUSE OF DEATH	NUMBER OF DEATHS	PERCENT
440.9	Generalized and Unspecified Atherosclerosis	1,187	94.7
440.2	Atherosclerosis of Arteries of the Extremities	63	5.0
440.0	Atherosclerosis of Aorta	3	0.2
440.1	Atherosclerosis of Renal Artery	1	0.1
	TOTAL	1,254	100.0

1 - Detailed List of the 9th Revision of the International Classification of Diseases, WHO.

FIGURE 2.44 - Probability of Eventually Dying from Atherosclerosis by Age and Sex, Michigan Residents, 1978-1980[1]



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[1] Note: Should comparisons be desired between this graph and a similar graph contained herein that pertains to some other specified cause of death, differences in scale m be encountered.

SUICIDE

There were a total of 1,061 suicide deaths in 1980, making suicide the 10th leading cause of death. Seventy-seven percent of the deaths resulting from suicide were to males. About 90 percent of all suicide deaths were to white persons.

Fifty percent of all suicide deaths occurred at or below the age of 38. The median age at death for males was 35 years, 6 years below that for females. The median ages at death for white males and females were 37 and 42 years respectively. For other than white males the median age at death was 30 years and for other than white females, 32 years (Table 2.48).

The crude suicide death rate in 1980 was 11.5 per 100,000 population. The crude rate for males (18.0) was 3.5 times that for females (5.2). Age-specific rates for males were higher in all age groups (Table 2.49 and Figure 2.45). While suicide rates for males were highest among men from 25-34 years and those aged 75 or older, the rates for females were highest from age 25 through 54 and declined in the older age groups. The greatest relative differentials by sex were in the 15-24 year and 75-84 year age groups, where the rates for males were 6.0 and 5.6 times, respectively, the rates for females.

The crude suicide death rate for the white population was 72 percent higher than that for the other than white population. The age-adjusted rate for white persons was 57 percent higher than that for other than white persons. Age-specific rates by race from Table 2.49 are displayed in Figure 2.46. Age-specific rates for white persons were greater than those for other than white persons in all categories with sufficient events to calculate rates, with the exception of the age group 25-34 years. There were 146 suicide deaths of white persons 65 years of age or older. This is 15.2 percent of all suicide deaths of white persons. Among persons of other races there were 3 suicide deaths at age 65 or over (3.0 percent of the total).

There is strong similarity in both the trend and magnitude of suicide death rates for Michigan and the United States in this century (Figure 2.47). There were two complete cycles of rising then falling rates in the period 1900 through 1944. The rates then held fairly stable for about 20 years. Between 1964 and 1977 the suicide death rate increased by 39 percent in Michigan, reaching 14.0, the highest rate since 1938. The highest rate during this century was 18.8 in 1931, while the lowest was the rate of 8.8 in 1900. For the nation high and low rates were observed in 1932 (17.4) and in 1957 (9.8). In 1980 the provisional rate for the United States was 12.7, compared to

TABLE 2.48
DEATHS DUE TO SUICIDE BY AGE, RACE, AND SEX, MICHIGAN RESIDENTS, 1980

AGE IN YEARS	ALL RACES			WHITE			ALL OTHER			RACE NOT STATED		
	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE
UNDER 1	-	-	-	-	-	-	-	-	-	-	-	-
1-4	-	-	-	-	-	-	-	-	-	-	-	-
5-9	-	-	-	-	-	-	-	-	-	-	-	-
10-14	7	6	1	6	5	1	1	1	-	-	-	-
15-19	76	67	9	70	61	9	6	6	-	-	-	-
20-24	138	116	22	123	104	19	15	12	3	-	-	-
25-29	136	111	25	113	92	21	22	18	4	1	1	-
30-34	135	99	36	113	82	31	22	17	5	-	-	-
35-39	74	47	27	68	45	23	5	2	3	1	-	1
40-44	71	50	21	62	42	20	8	7	1	1	1	-
45-49	73	51	22	71	49	22	2	2	-	-	-	-
50-54	67	50	17	62	46	16	5	4	1	-	-	-
55-59	73	55	18	70	52	18	3	3	-	-	-	-
60-64	62	48	14	55	42	13	7	6	1	-	-	-
65-69	46	33	13	43	31	12	3	2	1	-	-	-
70-74	41	31	10	41	31	10	-	-	-	-	-	-
75-79	33	27	6	33	27	6	-	-	-	-	-	-
80-84	16	11	5	16	11	5	-	-	-	-	-	-
85-89	10	7	3	10	7	3	-	-	-	-	-	-
90+	3	3	-	3	3	-	-	-	-	-	-	-
NOT STATED	-	-	-	-	-	-	-	-	-	-	-	-
ALL AGES	1061	812	249	959	730	229	99	80	19	3	2	1
MEDIAN AGE AT LAST BIRTHDAY	38	35	41	39	37	42	31	30	32	*	*	*

TABLE 2.49
SUICIDE DEATH RATES BY AGE, RACE, AND SEX <1>, MICHIGAN RESIDENTS, 1980

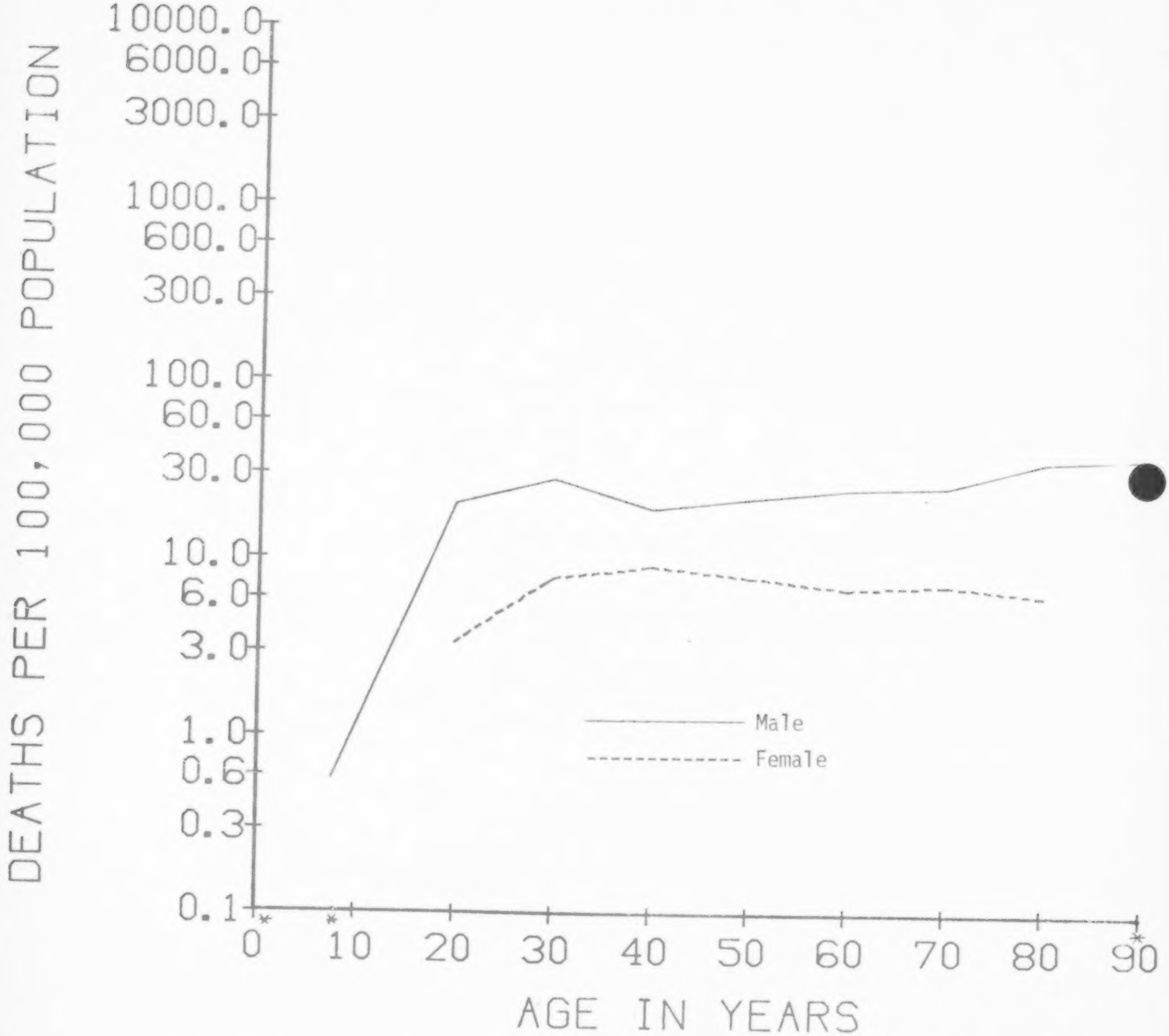
AGE	ALL RACES			WHITE			OTHER THAN WHITE		
	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE
ALL AGES-CRUDE RATE	11.5	18.0	5.2	12.2	19.0	5.7	7.1	12.0	2.6
UNDER 1 YEAR	*	*	*	*	*	*	*	*	*
1-14 YEARS	.3	.6	*	.4	.6	*	*	*	*
15-24 YEARS	11.9	20.4	3.4	12.7	21.7	3.7	7.5	13.2	*
25-34 YEARS	17.9	28.1	7.9	17.8	27.5	8.1	18.5	31.8	7.0
35-44 YEARS	14.1	19.2	9.2	14.9	20.0	9.8	9.2	13.7	*
45-54 YEARS	15.0	22.3	8.1	16.4	23.9	9.2	5.9	11.0	*
55-64 YEARS	15.6	25.2	7.0	16.3	25.9	7.7	10.2	19.6	*
65-74 YEARS	15.6	26.2	7.4	16.9	28.4	7.9	*	*	*
75-84 YEARS	17.9	36.7	6.5	19.6	40.6	7.1	*	*	*
85 AND OVER	15.9	39.5	*	17.2	43.0	*	*	*	*
AGE-ADJUSTED RATE<2>	11.2	17.7	5.2	11.8	18.4	5.6	7.5	12.8	2.7

<1> DEATHS WITH SEX OR RACE NOT STATED WERE RANDOMLY ALLOCATED PRIOR TO COMPUTATION OF AGE-SPECIFIC DEATH RATES. DEATHS WITH AGE NOT STATED WERE INCLUDED IN THE CATEGORY 85 AND OVER.

<2> BASED ON AGE-SPECIFIC DEATH RATES PER 100,000 POPULATION IN SPECIFIED GROUP. COMPUTED BY THE DIRECT METHOD, USING AS THE STANDARD POPULATION THE AGE DISTRIBUTION OF THE TOTAL POPULATION OF THE UNITED STATES AS ENUMERATED IN 1940; SEE TECHNICAL NOTES.

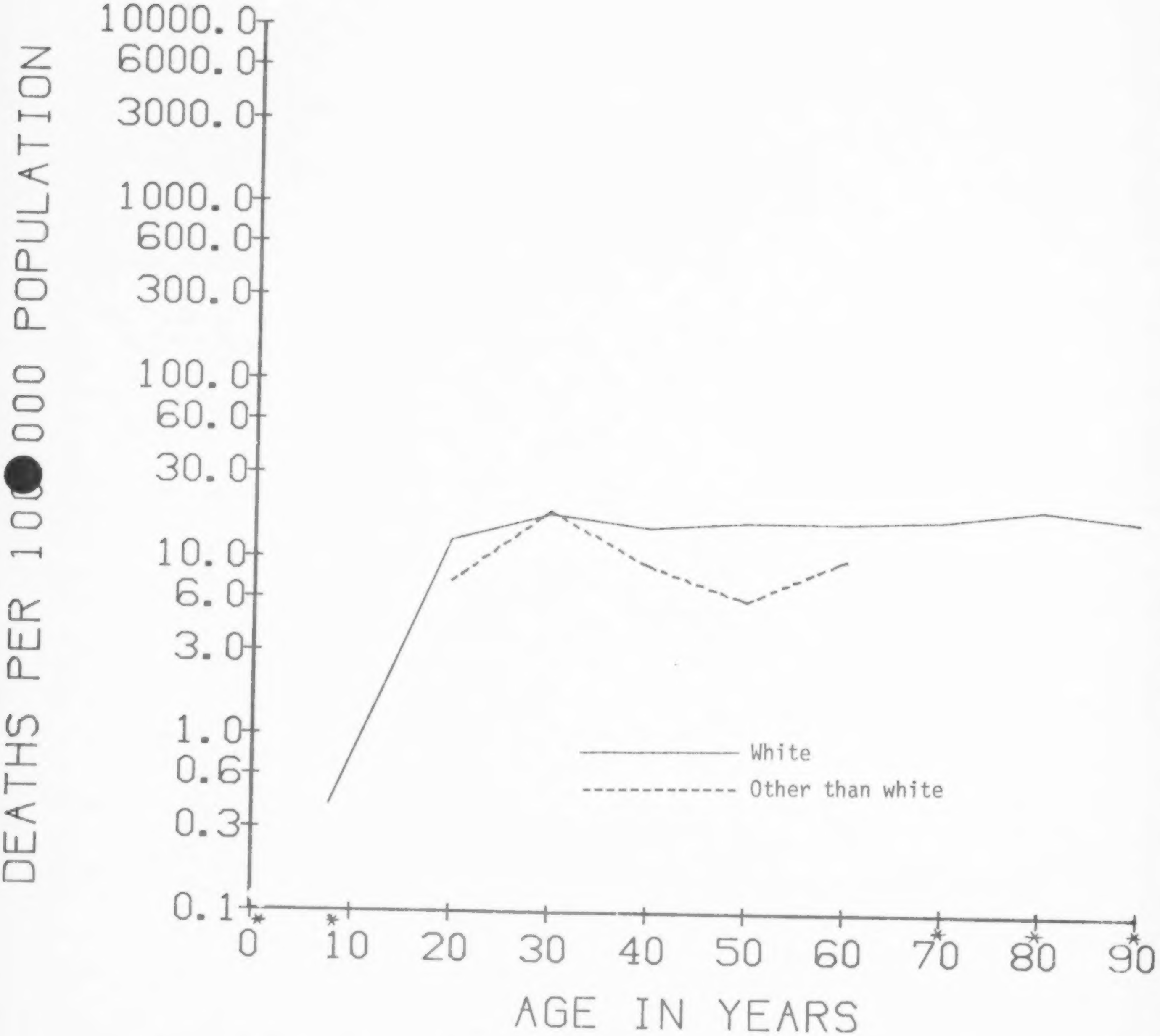
* RATE IS CONSIDERED STATISTICALLY UNRELIABLE.

FIGURE 2.45 - Age-Specific Suicide Death Rates[1] by Sex, Michigan Residents, 1980



[1] Note that death rates are shown on a logarithmic scale: vertical distances represent relative differences in rate rather than absolute differences

FIGURE 2.46 - Age-Specific Suicide Death Rates[1] by Race, Michigan Residents, 1980



[1]Note that death rates are shown on a logarithmic scale: vertical distances represent relative differences in rate rather than absolute differences

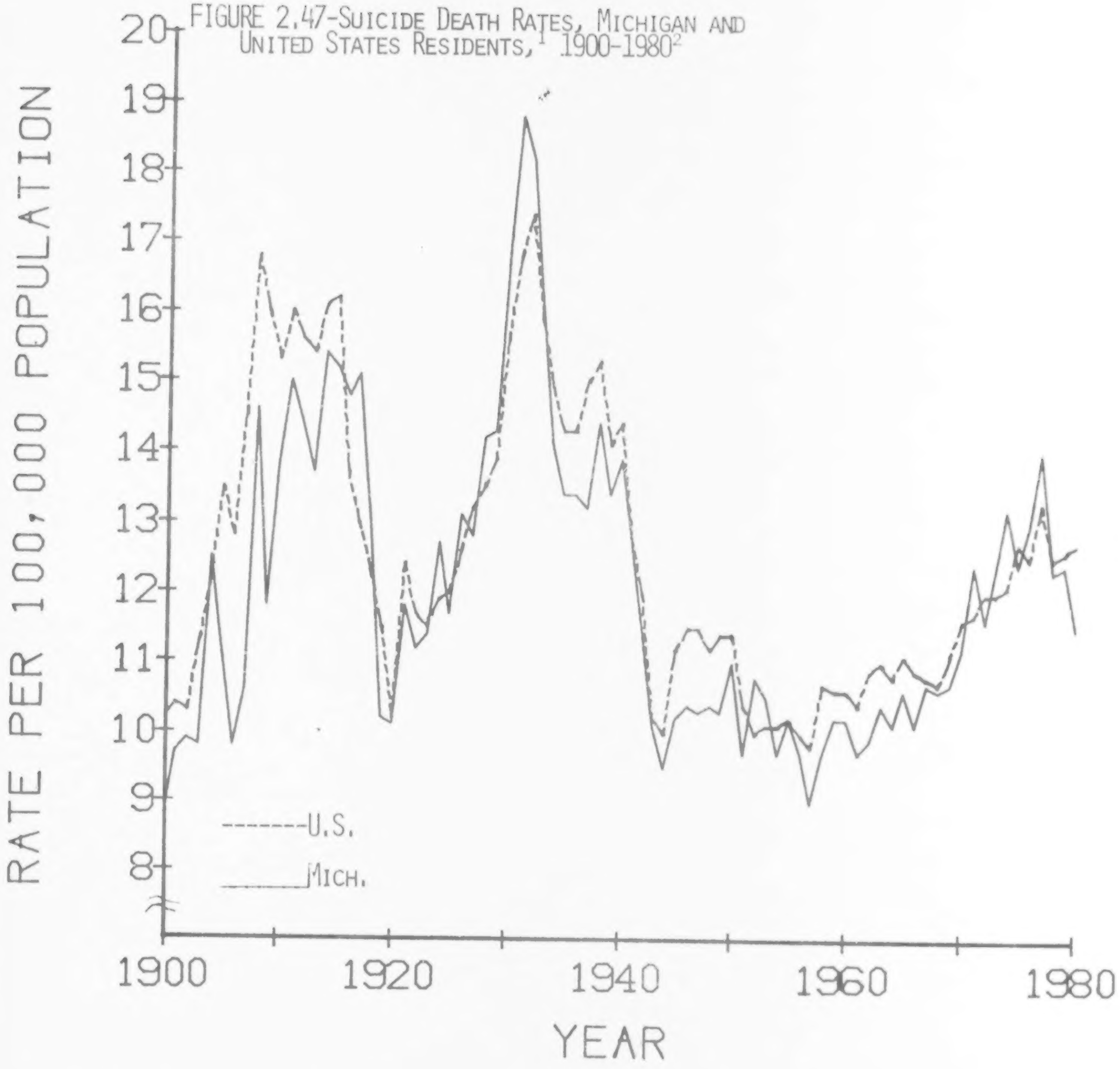


FIGURE 2.47-SUICIDE DEATH RATES, MICHIGAN AND UNITED STATES RESIDENTS,[1] 1900-1980[2]

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[1] National rates are from death registration states for 1900-1932 and the United States for 1933-1980. U.S. rate for 1980 is provisional.

[2] Suicide death rates since 1900 are suitable for general comparison over time but detailed study (such as time series) requires special consideration. See Technical Notes.

Michigan's rate of 11.5.

Age-adjusted suicide death rates by race and sex for Michigan and the United States from 1970 through 1980 are presented in Table 2.50. For Michigan females the age-adjusted rate for suicide remained quite stable from 1970 through 1977, and has since declined, while that for white males increased between 1970 and 1977, and has fallen in each of the last three years. The rates for other than white persons, though exhibiting no clear trend, were consistently below those of their white counterparts throughout the period. Rates for the nation were more stable. For white and other than white females the rates showed no clear trend, while there were relatively small increases for white and other than white males. The rates in Michigan for the other than white population were significantly higher than those of the nation. Rates in Michigan for the white population groups were slightly higher than those of the nation. The age-adjusted rate for the total population of Michigan was at or above the comparable national rate each year from 1970 through 1979. In 1980 the state rate was 8.2 percent below the provisional rate for the United States.

Suicides in Michigan were predominantly the result of one of four types of self-inflicted injury. Self-inflicted injury by firearms caused 553 deaths in 1980. Hanging, strangulation and suffocation resulted in 170 deaths. Self-inflicted poisoning by gases and vapors resulted in 150 deaths, of which 126 were attributed to motor vehicle exhaust gas and another 23 to other carbon monoxide poisoning. There were 104 deaths due to poisoning by drugs, medicaments, and biologicals. Together these four types of suicide accounted for 92.1 percent of all suicidal deaths to Michigan residents in 1980 (Table 2.51).

Using the Michigan mortality experience of 1978 through 1980, the chance of a male eventually dying from suicide is 0.014 at birth. The risk for females is 0.005. These probabilities hold relatively constant through age 20 then taper slowly with advancing age (Figure 2.48).

Table 2.50
Age-Adjusted Suicide Death Rates[1] by Race and Sex, Michigan[2] and United States Residents, 1970-1980

Place	Year	All Races			White			Other Than White		
		Total	Male	Female	Total	Male	Female	Total	Male	Femal
Mich.	1970	11.9	17.3	6.9	12.4	17.9	7.3	7.4	11.8	3.4
	1971	13.0	18.2	8.4	13.3	18.4	8.6	10.6	15.8	6.0
	1972	12.1	17.9	6.9	12.6	18.4	7.3	8.2	12.6	4.2
	1973	12.8	19.3	6.7	13.2	19.9	7.0	9.4	15.4	4.1
	1974	13.6	19.9	8.0	14.2	20.7	8.3	8.9	13.1	5.2
	1975	12.9	19.4	6.8	13.3	19.9	7.1	9.5	15.0	4.5
	1976	13.2	19.8	7.0	13.5	20.3	7.3	10.2	16.0	5.1
	1977	13.9	21.4	7.1	14.5	22.2	7.4	9.6	15.5	4.4
	1978	12.2	18.8	6.2	12.6	19.4	6.3	9.7	14.6	5.5
	1979	12.2	18.6	6.3	12.4	18.8	6.5	10.7	16.9	5.1
	1980	11.2	17.7	5.2	11.8	18.4	5.6	7.5	12.8	2.7
U.S.	1970	11.8	17.3	6.8	12.4	18.2	7.2	6.5	10.3	3.3
	1971	11.9	17.2	7.1	12.5	18.0	7.5	7.0	10.4	3.9
	1972	12.1	17.9	6.9	12.7	18.5	7.4	7.5	11.9	3.6
	1973	12.0	18.0	6.6	12.6	18.7	7.1	7.2	11.6	3.3
	1974	12.2	18.2	6.7	12.8	19.0	7.1	7.2	11.7	3.3
	1975	12.6	19.0	6.9	13.3	19.8	7.3	7.5	12.1	3.5
	1976	12.3	18.5	6.6	12.9	19.2	7.0	7.6	12.3	3.5
	1977	12.9	19.7	6.8	13.6	20.6	7.2	7.8	12.6	3.7
	1978	12.0	18.5	6.2	12.7	19.2	6.6	7.4	12.2	3.2
	1979	12.0[3]	---	---	---	---	---	---	---	---
	1980	12.2[3]	---	---	---	---	---	---	---	---

[1] - Based on age-specific death rates per 100,000 population in specified group. Computed by the direct method, using as the standard population the age distribution of the total population of the United States as enumerated in 1940; see Technical Notes.

[2] - Rates for Michigan for 1970-1979 have been revised; see Technical Notes.

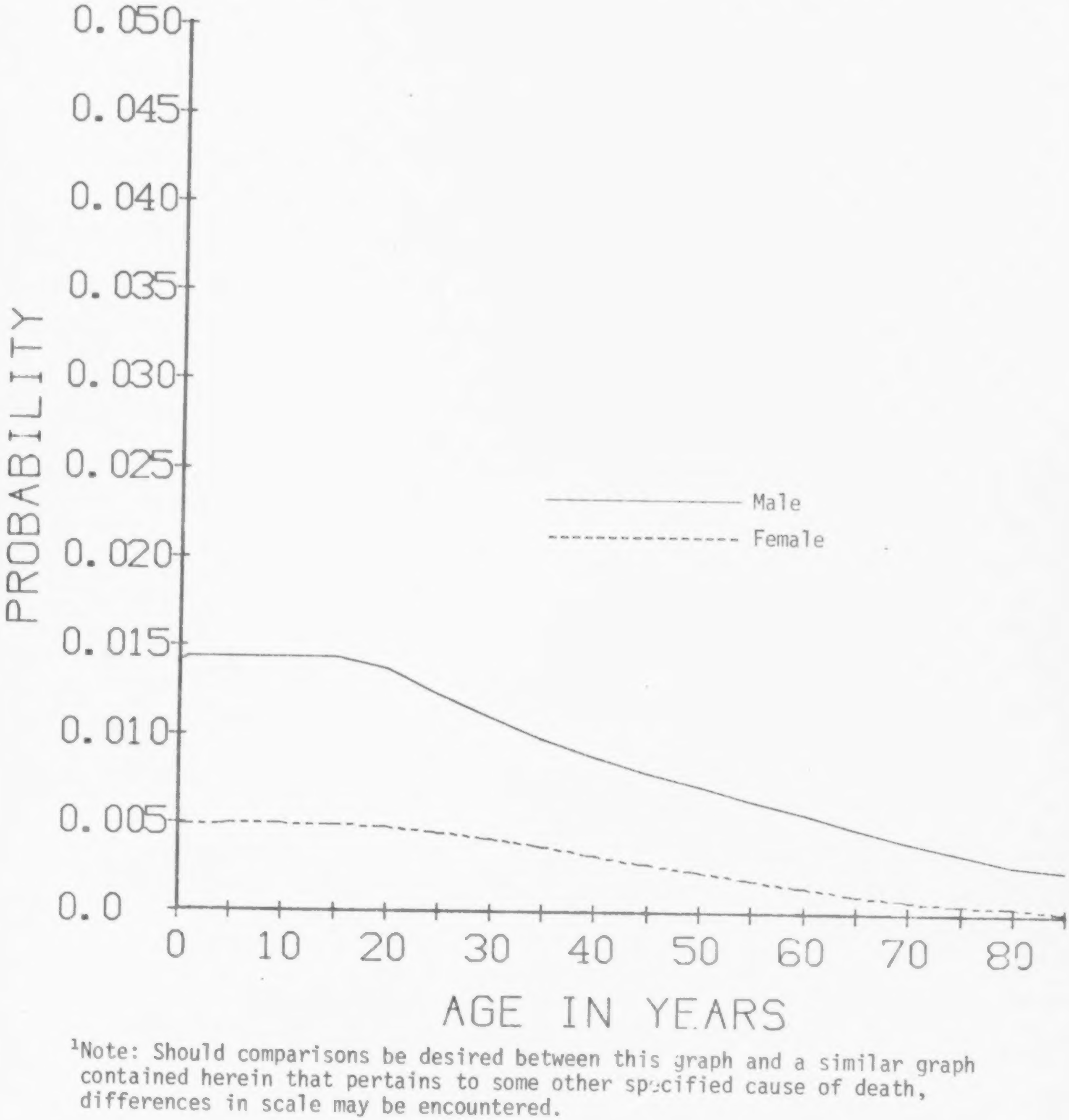
[3] - Provisional.

Table 2.51
Deaths Due to Suicide by Method, Michigan Residents, 1980

282 LIST[1] NUMBER	CAUSE OF DEATH	NUMBER OF DEATHS	PERCENT
269	Suicide by All Other and Unspecified Firearms	541	51.0
267	Suicide by Hanging, Strangulation, and Suffocation	170	16.0
266	Suicide by Gases and Vapors	150	14.1
264	Suicide by Drugs, Medicaments, and Biologicals	104	9.8
270	Suicide by All Other Means and Late Effects of Self-Inflicted Injury	76	7.2
268	Suicide by Handgun	12	1.1
265	Suicide by Other Solid or Liquid Substances	8	0.8
	TOTAL	1,061	100.0

1 - List of 282 Selected Causes developed by the National Center for Health Statistics for tabulation of Mortality Data coded by the 9th Revision of the International Classification of Diseases, WHO.

FIGURE 2.48 - Probability of Eventually Dying from Suicide by Age and Sex, Michigan Residents, 1978-1980[1]



[1] Note: Should comparisons be desired between this graph and a similar graph contained herein that pertains to some other specified cause of death, differences in scale may be encountered.

THE PROBABILITY OF EVENTUAL DEATH DUE TO A SPECIFIED CAUSE

While cause-specific death rates are useful in gauging the frequency of death due to certain causes and in making comparisons between areas or populations, they do not relate the risk that the condition imposes on the population with clarity. Mortality data can be used to develop this risk in probabilistic terms. Through the application of life expectancy techniques, a probability of death due to a given cause can be estimated. Such probabilities represent the average risk of eventual death being caused by a specified condition under an assumption that the mortality across all ages that was observed in a time period will remain unchanged through the remaining life of the population. These probabilities can be estimated for any given age attained. The following table relates the probability at birth of dying from the ten leading causes of death based upon Michigan mortality experience for the years 1978 through 1980.

DISEASE CATEGORY	PROBABILITY AT BIRTH OF EVENTUAL DEATH DUE TO CONDITION FOR:	
	Males	Females
Diseases of the Heart	.421	.442
Malignant Neoplasms	.209	.179
Cerebrovascular Diseases	.075	.121
Accidents and Adverse Effects	.044	.025
Chronic Obstructive Pulmonary Diseases and Allied Conditions	.032	.013
Pneumonia and Influenza	.026	.029
Diabetes Mellitus	.016	.026
Chronic Liver Disease and Cirrhosis	.019	.010
Atherosclerosis	.015	.028
Suicide	.014	.005
All Other Causes	.129	.122
Total	1.000	1.000

The 1978 through 1980 data would indicate that 87.1 percent of all males and 87.8 percent of all females in Michigan will die from one of the ten leading causes if all things remain constant. Approximately four of every ten people will die from heart disease. Women face higher risks of death from heart disease, cerebrovascular disease, pneumonia and influenza, diabetes mellitus, and atherosclerosis than do males. At the same time, males are more likely to die from cancer, accidents, chronic obstructive pulmonary diseases and allied conditions, chronic liver disease and cirrhosis, and suicide.

Related to the probability at birth of eventual death due to a given cause is the hypothetical gain in life expectancy that would result if a given cause of death were eliminated. Based on 1978-1980 mortality data, the average number of years of life gained by eliminating deaths due to a major cause is given in the table that follows. Deaths in infancy from all causes are added for comparative purposes.

DISEASE CATEGORY ELIMINATED	YEARS GAINED IN LIFE EXPECTANCY FOR:	
	Males	Females
Diseases of the Heart	4.91	3.38
Malignant Neoplasms	2.70	2.66
Cerebrovascular Diseases	0.59	0.78
Accidents and Adverse Effects	1.34	0.63
Chronic Obstructive Pulmonary Diseases and Allied Conditions	0.29	0.15
Pneumonia and Influenza	0.21	0.18
Diabetes Mellitus	0.16	0.25
Chronic Liver Disease and Cirrhosis	0.36	0.21
Atherosclerosis	0.07	0.09
Suicide	0.40	0.16
All Causes of Infant Mortality	1.03	0.86

The largest gains in life expectancy would result from the elimination of heart disease and cancer, the two leading causes of death. Considering the number of deaths involved, relatively large gains in life expectancy would result from the elimination of infant mortality, accidents, and suicide. Eliminating deaths in the younger age groups, where many of the deaths from these causes occur, has a greater impact on the potential number of years of life to be gained than eliminating deaths in the older age groups.

INFANT DEATHS

Of the 74,991 deaths occurring to Michigan residents in 1980, 1,851 occurred to individuals less than one year of age. The number of infant deaths has declined steadily since 1957 with the single exception of 1970. The frequency of infant deaths has declined by 47.0 percent since 1970 when there were 3,492 such deaths (Table 2.52). The 1980 figure was 3.6 percent below the number for 1979. Nationally, the number of infant deaths in 1980 was 45,000 (provisional). This was 39.7 percent below the number in 1970 and the same as the provisional figure for 1979.

The rate of death for infants under the age of one year has dropped considerably since 1900. In that year there were 157.1 infant deaths for every 1,000 live births. This means that about 16 of every 100 infants did not survive their first year. This rate fell below 100 by 1914 (96.8), to less than 70 by 1927 (67.7), and to less than 50 by 1937 (47.8). During the 1940's the Michigan infant death rate declined from 40.6 in 1940 to 28.9 in 1949. Relative declines in rate slowed considerably in the 1950's and 1960's. It was not until 1971 that the rate dropped below 20 to 19.5. The rate of decline since 1970 compares favorably with the rate of decline observed before 1950. In 1980, the Michigan infant mortality rate was 12.8 (Figure 2.49).

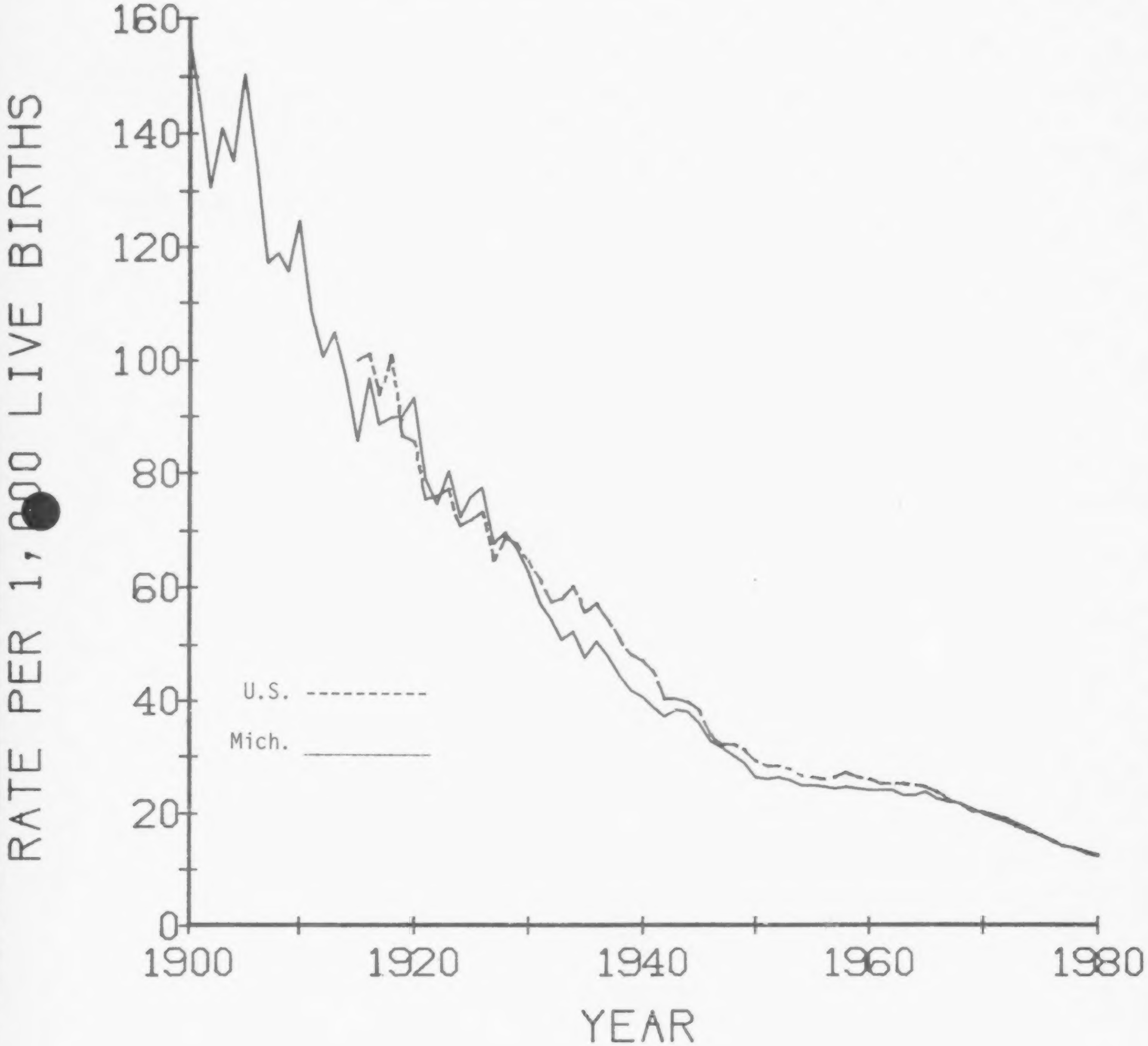
During the period 1915-1928, the rate for Michigan was above that for the United States 9 of 14 years. From 1929 through 1969, Michigan's infant death rate was consistently below the national statistic. From 1970 through 1975 the infant mortality rate in Michigan was slightly higher than the rate for the nation. Since 1976 the rates for the state and nation have been similar. The provisional rate for the United States in 1980 was 12.5.

Table 2.53 shows the numbers of infant deaths and infant death rates by age at death for the period 1970-1980. The number of infants that died during the first day of life in 1980 (790) is greater than the number of deaths of infants aged 7-364 days (751). About 69 percent of all infant deaths occurred within the first month of life in 1980, with about 59 percent in the first week. These percentages were 77 and 71 percent in 1970. A review of Table 2.53 reveals that the 37.3 percent decline in the infant mortality rate since 1970 stems largely from reductions in the rate of death for those less than 7 days of age. The death rate for infants during their first day of life has declined 31.7 percent since 1970, while the death rate for ages 1-6 days has declined by 66.5 percent over the last ten years. In contrast, the death rate for infants aged 7-27 days actually increased in the mid-1970's before dropping in 1980 to about the 1970 level. The death

Table 2.52
Infant Deaths and Infant Mortality Rates
Michigan and United States Residents, 1970-1980

UNITED STATES		YEAR	MICHIGAN	
Number	Rate		Number	Rate
74,667	20.0	1970	3,492	20.3
67,981	19.1	1971	3,157	19.5
60,182	18.5	1972	2,801	19.1
55,581	17.7	1973	2,561	18.1
52,776	16.7	1974	2,387	17.4
50,525	16.1	1975	2,205	16.5
48,265	15.2	1976	1,978	15.1
46,975	14.1	1977	1,945	14.1
45,945	13.8	1978	1,931	13.9
45,000Pr.	13.0 Pr.	1979	1,921	13.3
45,000Pr.	12.5 Pr.	1980	1,851	12.8

FIGURE 2.49 Infant Mortality Rates, Michigan Residents 1900-1980 and United States Residents,[1] 1915-1980



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[1] United States rates for 1979 and 1980 are provisional.

Table 2.53
Infant Deaths and Mortality Rates by Age at Death, Michigan Residents, 1970-1980

	AGE AT DEATH									
	TOTAL INFANT DEATHS		UNDER 1 DAY		1-6 Days		7-27 Days		28-364 Days	
YEAR	NUMBER	RATE	NUMBER	RATE	NUMBER	RATE	NUMBER	RATE	NUMBER	RATE
1970	3,492	20.34	1,367	7.96	1,095	6.38	221	1.29	809	4.71
1971	3,157	19.46	1,191	7.34	1,025	6.32	196	1.21	745	4.59
1972	2,801	19.07	1,024	6.97	906	6.17	185	1.26	686	4.67
1973	2,561	18.09	1,131	7.99	579	4.09	192	1.36	659	4.66
1974	2,387	17.37	940	6.84	569	4.14	225	1.64	653	4.75
1975	2,205	16.46	856	6.39	461	3.44	246	1.84	642	4.79
1976	1,978	15.06	829	6.31	402	3.06	193	1.47	554	4.22
1977	1,945	14.05	794	5.74	374	2.70	199	1.44	578	4.18
1978	1,931	13.91	717	5.17	384	2.77	180	1.30	650	4.68
1979	1,921	13.30	754	5.22	356	2.46	185	1.28	626	4.33
1980	1,851	12.75	790	5.44	310	2.14	184	1.27	567	3.91

rate for infants aged 28-364 days was quite stable from 1970 through 1975. This rate fell in 1976 and 1977 but increased in 1978 to about the same level as observed in 1970. The death rate for this age group declined again in 1979 and 1980. In 1980 the death rate for infants aged 28-364 days was 3.91, 17.0 percent below the comparable rate for 1970.

Infant mortality rates have varied considerably by race. Rates for white and other than white infants since 1950 are graphically displayed in Figure 2.50. Rates for other than white infants were higher throughout the period. Although the rates for both race groups have declined, those for white infants have decreased by a relatively larger amount. As a result, the racial differential in infant mortality rates has increased since 1950. Between 1950 and 1965, the infant mortality rate for white infants declined moderately while that for other than white infants remained relatively stable. Between 1965 and 1970 the rate for white infants declined by 14.7 percent while the rate for other than white infants declined by 20.5 percent. Since 1970, however, the rate for white infants has dropped by 43.2 percent while for other than white infants the decline was 22.5 percent. The rate for other than white infants of 35.6 in 1950[2] was 40 percent higher than that for white infants (25.4) whereas in 1980 the rate for other than white infants of 23.1 was 120 percent higher than that for white infants (10.5).

Michigan resident infant deaths in 1980 are listed by cause of death classification and age at death in Table 2.54. Congenital anomalies caused the death of 321 infants and was the specific disease category most frequently reported. Sudden infant death syndrome was responsible for 260 infant deaths in 1980, while respiratory distress syndrome was listed as the cause of 206 deaths. Over half (55.5 percent) of all infant deaths were attributed to conditions originating in the perinatal period. This proportion was 83.3 percent for deaths which occurred during the first day, 69.7 percent for deaths of infants at ages 1 through 6 days, and 56.5 percent for deaths of infants 1-3 weeks of age. In contrast, 30 of 444 deaths (6.8 percent) of infants from 1-5 months of age were caused by conditions originating in the perinatal period.

The most frequent causes of death during the first day were disorders relating to short gestation and unspecified low birthweight (17.6 percent) and congenital anomalies (15.7 percent). Respiratory distress syndrome and other respiratory conditions of the newborn caused 12.8 percent and 14.7 percent respectively of the deaths under 1 day of

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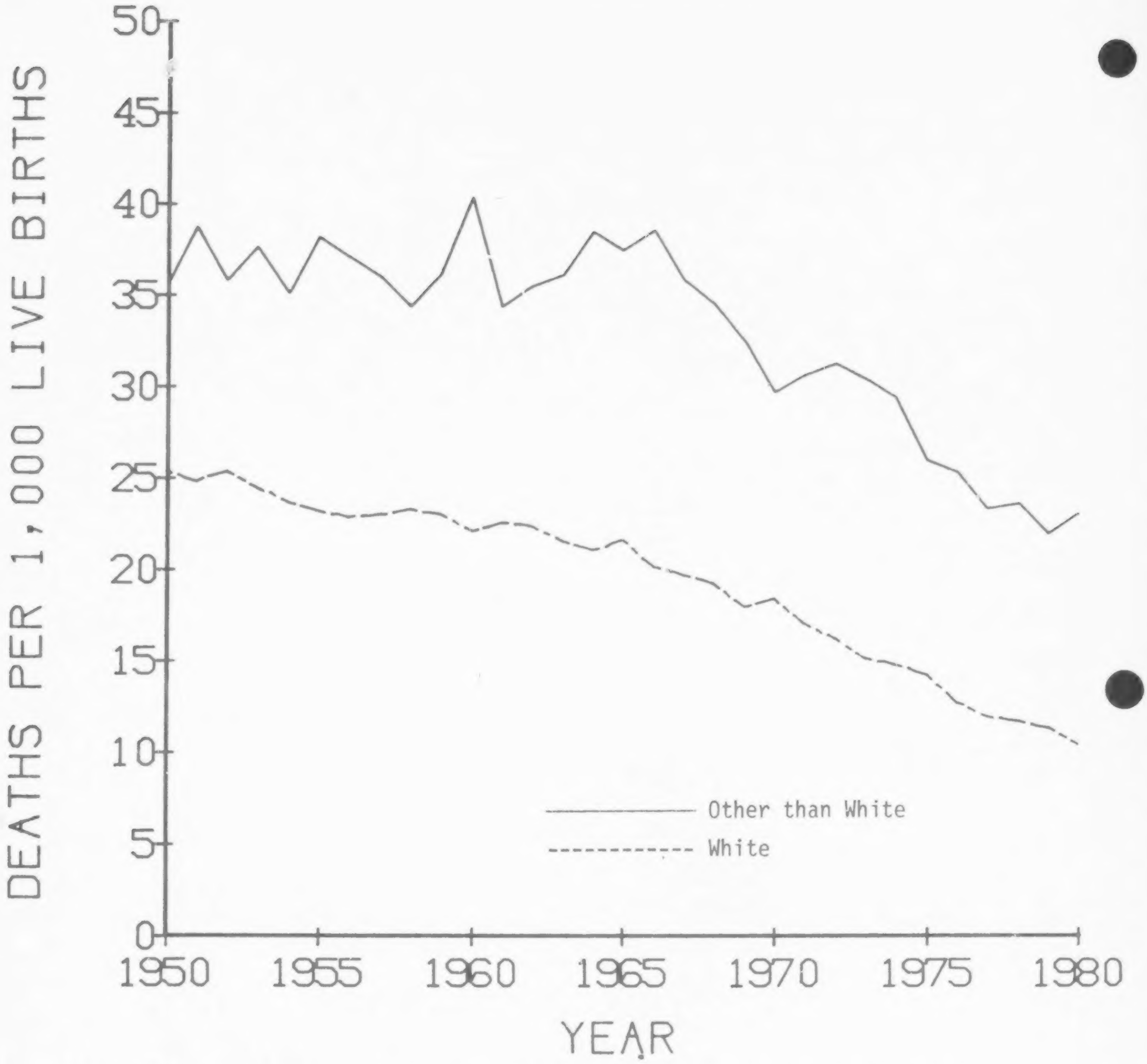
[2] Rates for other than white infants for 1950-1969 are based on deaths of unknown race as well as deaths of races other than white.

FIGURE 2.50 - Infant Death Rates by Race[1], Michigan Residents, 1950-1980



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[1] Other that white rates for 1950-1969 are based on deaths of unknown race as well as deaths of races other than white.

Table 2.54
Infant Deaths by Age at Death and Underlying Cause, Michigan Residents, 1980

ICD - 9 Code	Cause of Death	Age at Death					
		Total Under 1 Year	Under 1 Day	1-6 Days	7-27 Days	1-5 Months	6-11 Months
8,9,535, 555-558	Certain gastrointestinal diseases	7	-	-	-	5	2
38	Septicemia	8	-	-	-	8	-
1-7,10-37, 39-139	Remainder of infectious and parasitic diseases	5	-	-	3	1	1
320-322	Meningitis	13	-	2	-	7	4
480-487	Pneumonia and influenza	27	1	3	-	15	8
740-759	Congenital anomalies	321	124	76	35	63	23
761	Newborn affected by maternal complications of pregnancy	72	69	1	2	-	-
762	Newborn affected by complications of placenta, cord and membranes	50	44	5	1	-	-
765	Disorders relating to short gestation and unspecified low birthweight	145	139	5	1	-	-
767	Birth trauma	45	9	17	17	1	1
768	Intrauterine hypoxia and birth asphyxia	69	43	17	9	-	-
769	Respiratory distress syndrome	206	101	73	27	3	2
770	Other respiratory conditions of newborn	199	116	38	16	22	7
771	Infections specific to the perinatal period	35	9	15	11	-	-
772	Neonatal hemorrhage	38	10	22	6	-	-
760, 763, 764, 766, 773-779	All other and ill-defined conditions originating in the perinatal period	169	118	23	23	4	1
760-779	Certain conditions originating in the perinatal period	1,028	658	216	104	30	11
798.0	Sudden infant death syndrome	260	-	2	17	224	17
E800-E949	Accidents and adverse effects	39	-	1	2	15	21
E960-E969	Homicide	7	-	-	-	5	2
Residual	All other causes	136	7	10	14	71	34
	Total	1,851	790	310	184	444	123

age. Congenital anomalies and respiratory distress syndrome were the leading causes of death for infants 1-6 days of age (24.5 percent and 23.5 percent respectively). For infants who died at 1-3 weeks of age the most frequent causes were also congenital anomalies (19.0 percent) and respiratory distress syndrome (14.7 percent). Sudden infant death syndrome was reported as the cause of 50.5 percent of the deaths to infants from 1-5 months of age. The leading cause of death for infants from 6-11 months of age was congenital anomalies (18.7 percent). The 21 deaths due to accidents to infants aged 6-11 months represent 17.1 percent of the total deaths in this age group, while accidental deaths represent only 2.1 percent of all infant deaths.

Infant deaths and death rates by cause are shown for white and other than white infants in Table 2.55. The most frequent causes of death for white infants were congenital anomalies (253 deaths), sudden infant death syndrome (176 deaths), and respiratory distress syndrome (153 deaths). For other than white infants sudden infant death syndrome was the leading cause (84 deaths), followed by congenital anomalies and disorders relating to short gestation and unspecified low birthweight (67 and 63 deaths respectively). While the death rate from all causes combined for other than white infants was 120 percent above that for white infants, the differential by race was 162 percent for deaths due to certain conditions originating in the perinatal period. Note that 15 percent of the deaths of other than white infants were attributed to "all other and ill-defined conditions originating in the perinatal period", compared to 6 percent of the deaths of white infants. Rates for other than white infants were between 3 and 4 times those for white infants for deaths due to meningitis, maternal complications of pregnancy, disorders relating to short gestation and unspecified low birthweight, and intrauterine hypoxia and birth asphyxia. Cause-specific infant death rates for other than white infants were higher for all categories with sufficient events to calculate rates for both groups. The smallest relative differentials were in the categories of congenital anomalies and accidents, where the death rates for other than white infants exceeded those for white infants by 22 percent and 43 percent respectively.

The infant death rate from all causes for males was 24 percent greater than that for females. The differential for deaths due to certain conditions originating in the perinatal period was 13 percent. The rates for males were from 1.4 to 1.6 times those for females for deaths due to pneumonia and influenza, disorders relating to short gestation and unspecified low birthweight, birth trauma, respiratory distress syndrome, and for the category of "all other causes." The only causes for which the rates were higher for females were neonatal hemorrhage and intrauterine hypoxia and birth asphyxia (Table 2.56).

Table 2.55
Infant Deaths and Infant Death Rates by Race of Infant and Underlying Cause, Michigan Residents, 1980

ICD - 9 Code	Cause of Death	Race of Infant					
		Total[1]		White		Other Than White	
		Number	Rate[2]	Number	Rate[2]	Number	Rate[2]
8, 9, 535, 555-558	Certain gastrointestinal diseases	7	4.8	4	*	3	*
38	Septicemia	8	5.5	6	5.0	2	*
1-7,10-37, 39-139	Remainder of infectious and parasitic diseases	5	3.4	4	*	1	*
320-322	Meningitis	13	9.0	7	5.9	6	23.2
480-487	Pneumonia and influenza	27	18.6	20	16.8	7	27.1
740-759	Congenital anomalies	321	221.1	253	212.4	67	259.0
761	Newborn affected by maternal complications of pregnancy	72	49.6	42	35.3	30	116.0
762	Newborn affected by complications of placenta, cord and membranes	50	34.4	35	29.4	15	58.0
765	Disorders relating to short gestation and unspecified low birthweight	145	99.9	81	68.0	63	243.5
767	Birth trauma	45	31.0	34	28.5	11	42.5
768	Intrauterine hypoxia and birth asphyxia	69	47.5	39	32.7	29	112.1
769	Respiratory distress syndrome	206	141.9	153	128.5	51	197.1
770	Other respiratory conditions of newborn	199	137.1	139	116.7	60	231.9
771	Infections specific to the perinatal period	35	24.1	26	21.8	9	34.8
772	Neonatal hemorrhage	38	26.2	26	21.8	11	42.5
760, 763, 764, 766, 773-779	All other and ill-defined conditions originating in the perinatal period	169	116.4	76	63.8	92	355.6
760-779	Certain conditions originating in the perinatal period	1,028	708.2	651	546.6	371	1,434.1
798.0	Sudden infant death syndrome	260	179.1	176	147.8	84	324.7
E800-E949	Accidents and adverse effects	39	26.9	29	24.3	9	34.8
E960-E969	Homicide	7	4.8	5	4.2	2	*
Residual	All other causes	136	93.7	91	76.4	45	173.9
	Total	1,851	1,275.1	1,246	1,046.2	597	2,307.7

1 - Records with race not stated included only in total columns.
2 - Rates per 100,000 live births.

Table 2.56
Infant Deaths and Infant Death Rates by Sex of Infant and Underlying Cause, Michigan Residents, 1980

ICD - 9 Code	Cause of Death	Sex of Infant					
		Total[1]		Male		Female	
		Number	Rate[2]	Number	Rate[2]	Number	Rate[2]
8,9,535, 555-558	Certain gastrointestinal diseases	7	4.8	6	8.1	1	*
38	Septicemia	8	5.5	4	*	4	*
1-7, 10-37, 39-139	Remainder of infectious and parasitic diseases	5	3.4	1	*	4	*
320-322	Meningitis	13	9.0	9	12.1	4	*
480-487	Pneumonia and influenza	27	18.6	17	22.9	10	14.1
740-759	Congenital anomalies	321	221.1	187	252.2	134	188.7
761	Newborn affected by maternal complications of pregnancy	72	49.6	41	55.3	31	43.7
762	Newborn affected by complications of placenta, cord and membranes	50	34.4	28	37.8	22	31.0
765	Disorders relating to short gestation and unspecified low birthweight	145	99.9	86	116.0	59	83.1
767	Birth trauma	45	31.0	27	36.4	18	25.4
768	Intrauterine hypoxia and birth asphyxia	69	47.5	35	47.2	34	47.9
769	Respiratory distress syndrome	206	141.9	121	163.2	85	119.7
770	Other respiratory conditions of newborn	199	137.1	107	144.3	92	129.6
771	Infections specific to the perinatal period	35	24.1	19	25.6	16	22.5
772	Neonatal hemorrhage	38	26.2	15	20.2	23	32.4
760, 763, 764, 766, 773-779	All other and ill-defined conditions originating in the perinatal period	169	116.4	87	117.3	81	114.1
760-779	Certain conditions originating in the perinatal period	1,028	708.2	566	763.2	461	649.3
798.0	Sudden infant death syndrome	260	179.1	149	200.9	111	156.3
E800-E949	Accidents and adverse effects	39	26.9	20	27.0	19	26.8
E960-E969	Homicide	7	4.8	4	*	3	*
Residual	All other causes	136	93.7	82	110.6	54	76.1
	Total	1,851	1,275.1	1,045	1,409.1	805	1,133.8

[1] - Records with sex not stated included only in total column.
[2] - Rates per 100,000 live births.

Infant mortality rates by race are presented in Table 2.57. These data are from a file of merged live birth and infant death information. The rates presented are for Michigan residents born in 1979. Note that this matched file is approximately 98.7 percent complete and, therefore, the rates presented are understated. The rates for black infants (22.8) and American Indian infants (23.0) were more than twice that for white infants (11.0). The rate for infants of other races (10.6) was below the rate for all infants. The death rate for infants aged less than seven days showed similar variations by race (Table 2.58).

Data from the matched file on infant mortality rates by age of mother and race of child are presented in Table 2.59. Infant death rates display a parabolic relationship with mother's age. The rates are highest for infants born to mothers under age 20. The infant mortality rates of 19.7 and 18.7 for mothers under 15 years old and 15-19 years old respectively are about two thirds again as high as the rate of 11.9 for mothers aged 25-29 and 30-39 years. The infant mortality rate for mothers 40 or over is about one third higher than that for mothers of all ages combined.

Rates for white infants generally follow the pattern of association to mother's age, but infant mortality rates for the other than white group are less variable and are significantly above those for the white group in all categories with a sufficient number of events to calculate rates. The smallest differential was for mothers from 15-19 years of age where the rate for other than white infants was 1.6 times that of white infants. Overall the rate for other than white infants was more than twice as high as that for white infants.

Table 2.60 displays the variation in infant death rates according to the number of the mother's prenatal visits. The infant death rate for mothers who had no prenatal care was 81.4, over twelve times as high as the low rate of 6.6 for mothers who had 10-14 prenatal visits. The rate associated with mothers who had 1-4 visits was 9.4 times the low rate, while the rate associated with mothers who had 5-9 visits was 2.6 times as high as the low rate. The infant death rate for mothers with 20 or more prenatal visits was 77.3 percent higher than the low rate, reflecting the likelihood that a high number of prenatal visits is connected with a problem pregnancy.

Mothers with fewer than ten prenatal visits had 28.1 percent of all live births but 53.9 percent of all infant deaths. Mothers who had ten or more prenatal visits had 68.3 percent of the live births and 35.3 percent of the infant deaths. The infant death rate for mothers who had fewer than ten prenatal visits was 24.9. This is 3.7 times the rate of 6.7 for mothers who had ten or more prenatal

Table 2.57
Infant Deaths, Live Births, and Infant Death Rates by Race, Michigan Resident Infants Born in 1979

Race	Infant Deaths	Live Births	Infant Death Rate
All Races	1,882	144,452	13.0
White	1,310	118,671	11.0
Black	548	24,010	22.8
American Indian	10	435	23.0
Other Races	12	1,130	10.6
Unknown	2	206	*

Table 2.58
Hebdomadal Deaths[1] and Death Rates[2] by Race, Michigan Resident Infants Born in 1979

Race	Hebdomadal Deaths	Hebdomadal Death Rate
All Races	1,104	7.6
White	763	6.4
Black	331	13.8
American Indian	3	*
Other Races	6	5.3
Unknown	1	*

1 - Deaths to infants less than seven days old.
2 - Per 1,000 live births.

Table 2.59
Infant Deaths, Live Births, and Infant Death Rates by Age of Mother and Race[1] of Infant, Michigan Resident Infants Born in 1979

AGE OF MOTHER	ALL INFANTS			WHITE INFANTS			ALL OTHER INFANTS		
	INFANT DEATHS	LIVE BIRTHS	INFANT DEATH RATE	INFANT DEATHS	LIVE BIRTHS	INFANT DEATH RATE	INFANT DEATHS	LIVE BIRTHS	INFANT DEATH RATE
All Ages.......	1,882	144,452	13.0	1,310	118,671	11.0	570	25,575	22.3
Under 15.......	7	355	19.7	4	122	*	3	233	*
15-19 Years....	398	21,239	18.7	240	15,076	15.9	157	6,142	25.6
20-24 Years....	622	51,319	12.1	440	42,318	10.4	182	8,940	20.4
25-29 Years....	548	46,084	11.9	399	39,747	10.0	148	6,259	23.6
30-39 Years....	293	24,682	11.9	216	20,785	10.4	77	3,856	20.0
40 or More Years	13	756	17.2	11	610	18.0	2	141	*
Unknown Age....	1	17	*	-	13	*	1	4	*

1 - Race not stated included in total columns only.

Table [illegible]60

Infant Deaths, Live Births, and Infant Death Rates by Prenatal Visits and Race of Infant, Michigan Resident Infants Born in 1979

NUMBER OF VISITS	ALL INFANTS			WHITE INFANTS			ALL OTHER INFANTS[1]		
	INFANT DEATHS	LIVE BIRTHS	INFANT DEATH RATE	INFANT DEATHS	LIVE BIRTHS	INFANT DEATH RATE	INFANT DEATHS	LIVE BIRTHS	INFANT DEATH RATE
Total..........	1,882	144,452	13.0	1,310	118,671	11.0	570	25,575	22.3
0..............	73	897	81.4	30	467	64.2	43	429	100.2
1-4............	360	5,794	62.1	226	3,494	64.7	134	2,293	58.4
5-9............	581	33,966	17.1	428	26,674	16.0	153	7,272	21.0
10-14..........	546	82,972	6.6	420	71,344	5.9	124	11,574	10.7
15-19..........	90	13,266	6.8	74	11,280	6.6	16	1,980	8.1
20 or Over......	29	2,473	11.7	16	1,927	8.3	13	546	23.8
Unknown.........	203	5,084	39.9	116	3,485	33.3	87	1,481	58.7

1 - Race not stated included in total columns only.

visits.

The differential in mortality rates between other than white and white infants noted above is significantly altered when comparisons are made within the same range of prenatal visits. While the overall rate for other than white infants was 103 percent higher than that for white infants, for mothers who had 1-4 prenatal visits the rate for white infants was higher than the rate for other than white infants. For mothers with fewer than ten prenatal visits, the infant mortality rate for white infants was 22.3 and that for other than white infants 33.0. For mothers with ten or more prenatal visits, the rate for white infants was 6.0 and for other than white infants 10.9. The rate for other than white infants was 48 percent higher where the mother had fewer than ten prenatal visits and 82 percent higher where the mother had ten or more visits. Both of these racial differentials were less than the overall racial differential of 103 percent. This seemingly paradoxical result is explained by the differing distributions of the white and the other than white births. The overall infant mortality rate for each race is a weighted sum of the infant mortality rates for the different prenatal care categories. The weight for each prenatal care category is the ratio of the number of live births in that category to the total number of live births. Since a greater proportion of the other than white live births are to mothers in the categories with fewer prenatal visits, the higher infant mortality rates in the categories with fewer prenatal visits are more heavily weighted for the other than white population.

When deaths under one week are added to fetal deaths the total is called perinatal deaths. By placing a ceiling of six days for the infant component of perinatal deaths, most accidental and environmental causes of death are eliminated. In 1980, Michigan resident perinatal deaths numbered 2,276 and the perinatal death rate was 15.6. This rate was 16.0 in 1979 and 26.0 in 1970. As with infant death rates, perinatal death rates vary considerably with race, age of mother, and number of prenatal visits. Tables 2.61 and 2.62 show perinatal deaths and rates by age of mother, the number of the mother's prenatal visits, and the race of the fetus or infant for fetal deaths and live births occurring in 1979. The data for hebdomadal deaths are drawn from a merged file of birth and death data. As a result, perinatal deaths and rates are slightly understated. Table 2.61 makes clear the increased risk of death to fetuses and infants of mothers under 20 years or age 40 or greater. Minimum risk in 1979 was associated with mothers 25-29 years of age. Table 2.62 indicates that the risk of perinatal death is more than fourteen times as great for fetuses and infants whose mothers had fewer than five prenatal visits compared to those whose mothers had ten or more visits. The

Table [illegible].61

Perinatal Deaths, Total Births, and Perinatal Death Rates by Age of Mother and Race[1] of Infant or Fetus, Births to Michigan Residents in 1979

AGE OF MOTHER	ALL RACES			WHITE			ALL OTHER		
	PERINATAL DEATHS	TOTAL BIRTHS	PERINATAL DEATH RATE	PERINATAL DEATHS	TOTAL BIRTHS	PERINATAL DEATH RATE	PERINATAL DEATHS	TOTAL BIRTHS	PERINATAL DEATH RATE
Total..........	2,320	145,668	15.9	1,601	119,509	13.4	674	25,909	26.0
Under 15.......	13	363	35.8	5	124	40.3	7	238	29.4
15-19 Years....	404	21,435	18.8	243	15,199	16.0	157	6,212	25.3
20-24 Years....	757	51,712	14.6	536	42,595	12.6	215	9,050	23.8
25-29 Years....	670	46,415	14.4	471	39,978	11.8	185	6,345	29.2
30-39 Years....	390	24,894	15.7	294	20,947	14.0	89	3,899	22.8
40 or More Years	27	773	34.9	22	623	35.3	3	143	*
Unknown Age....	59	76	776.3	30	43	697.7	18	22	818.2

1 - Race not stated included in total column only.

Table 2.62
Perinatal Deaths, Total Births, and Perinatal Death Rates by Prenatal Visits and Race[1] of Infant or Fetus, Births to Michigan Residents in 1979

NUMBER OF VISITS	ALL RACES			WHITE			ALL OTHER		
	PERINATAL DEATHS	TOTAL BIRTHS	PERINATAL DEATH RATE	PERINATAL DEATHS	TOTAL BIRTHS	PERINATAL DEATH RATE	PERINATAL DEATHS	TOTAL BIRTHS	PERINATAL DEATH RATE
Total..........	2,320	145,668	15.9	1,601	119,509	13.4	674	25,909	26.0
0.............	150	993	151.1	58	503	115.3	90	487	184.8
1-4...........	456	5,987	76.2	304	3,627	83.8	148	2,349	63.0
5-9...........	737	34,353	21.5	540	26,959	20.0	193	7,370	26.2
10-14..........	466	83,214	5.6	373	71,542	5.2	91	11,617	7.8
15-19..........	89	13,312	6.7	75	11,317	6.6	12	1,987	6.0
20 & Over......	25	2,483	10.1	19	1,936	9.8	6	547	11.0
Unknown........	397	5,326	74.5	232	3,625	64.0	134	1,552	86.3

1 - Race not stated included in total columns only.

risk associated with 5-9 prenatal visits is 3.8 times as great as for the lowest risk category (10-14 visits).

The overall perinatal mortality rate for other than white fetuses and infants was nearly twice as high as for whites. The highest perinatal death rate for both groups was associated with mothers under age 15. While for white fetuses and infants the minimum risk was clearly associated with mothers 25-29 years of age, there was no clear pattern of increased risk associated with age of mother for other than white fetuses and infants (Table 2.61).

For both white and other than white fetuses and infants the highest mortality rates were associated with mothers who received less than 5 prenatal visits. Where the mother received no prenatal care the rate for other than white fetuses and infants was 1.6 times the comparable rate for white fetuses and infants. For those born to mothers who received 1-4 prenatal visits or 15-19 prenatal visits the rates were higher for white fetuses and infants than for other than white fetuses and infants. Although for fetuses and infants born to mothers who received 5-9, 10-14, or 20 or more visits the rates were higher for other than white fetuses and infants, the differentials by race were considerably less than the overall differential (Table 2.62).

The median birth weight of infants born in 1979 and dying prior to 1 year of age was 1,758 grams (Table 2.63). The median birth weight of all Michigan resident live births in 1979 was 3,374 grams. For all maternal age groups, the median birth weight for infant deaths was below the overall median birthweight for liveborn infants.

Infant death rates by race, birthweight and age at death are displayed in Table 2.64 for infants born in 1979. While the overall infant death rate for other than white infants was more than double that of white infants, the rates for white and other than white infants were quite similar for infants born weighing 1500 grams or less. The rate for white infants weighing 1501-2500 grams exceeded by 28 percent the comparable rate for other than white infants. For infants weighing 2,501 grams or more the rate for other than white infants exceeded by 61 percent that for white infants. A large part of the difference between infant death rates for white and other than white infants is due to the fact that a greater proportion of the other than white infants were born at weights below 2,501 grams (13.0 percent for other than white infants compared to 5.8 percent for white infants).

The differentials in death rates by race for deaths under 28 days (neonatal deaths) and from 28-364 days (postneonatal deaths) were similar to that for all infant

Table 2.63
Infant Deaths by Birth Weight and Mother's Age, Michigan Resident Infants Born in 1979

BIRTH WEIGHT IN GRAMS	Total	MOTHER'S AGE						
		Under 15	15-19	20-24	25-29	30-39	40 or More	Not Stated
Total.................	1,882	7	398	622	548	293	13	1
500 or Less...........	187	3	46	54	60	24	-	-
501-1,000.............	466	2	90	144	152	75	3	-
1,001-1,500...........	177	-	43	57	46	30	1	-
1,501-2,000...........	145	-	32	47	44	21	1	-
2,001-2,500...........	153	-	22	53	42	33	2	1
2,501-3,000...........	193	1	36	72	59	25	-	-
3,001-3,500...........	260	1	68	101	54	33	3	-
3,501-4,000...........	157	-	41	44	46	26	-	-
4,001-4,500...........	52	-	7	18	12	13	2	-
4,501 and Over........	19	-	2	7	7	3	-	-
Not Stated............	73	-	11	25	26	10	1	-
Median Weight in Grams	1,758	*	1,701	1,980	1,503	1,800	*	*

Table [illegible]64

Live Births by Birthweight and Race of Infant and Infant Deaths and Infant Death Rates by Birthweight, Age at Death and Race of Infant, Michigan Resident Infants Born in 1979

Birthweight	Race of Infant	Live Births	Age at Death					
			Total Under 1 Year		Under 28 Days		28-364 Days	
			Number	Rate	Number	Rate	Number	Rate
Total	All Races	144,452	1,882	13.0	1,288	8.9	594	4.1
	White	118,671	1,310	11.0	895	7.5	415	3.5
	All Other[1]	25,575	570	22.3	392	15.3	178	7.0
≤ 1500 Grams	All Races	1,777	830	467.1	758	426.6	72	40.5
	White	1,134	540	476.2	501	441.8	39	34.4
	All Other[1]	641	290	452.4	257	400.9	33	51.5
1501-2500 Grams	All Races	8,401	298	35.5	192	22.9	106	12.6
	White	5,696	217	38.1	141	24.8	76	13.3
	All Other[1]	2,693	80	29.7	50	18.6	30	11.1
2501+ Grams	All Races	134,016	681	5.1	278	2.1	403	3.0
	White	111,719	516	4.6	223	2.0	293	2.6
	All Other[1]	22,139	164	7.4	55	2.5	109	4.9
Unknown Birthweight	All Races	258	73	282.9	60	232.6	13	50.4
	White	122	37	303.3	30	245.9	7	57.4
	All Other[1]	102	36	352.9	30	294.1	6	58.8

1 - Race not stated included in total rows only.

deaths. For both neonatal and postneonatal deaths the differentials in death rates by race in the different birthweight categories were less than the overall differential. For infants weighing less than 1,501 grams the rate for deaths before 28 days was greater for white infants while the rate for deaths from 28-364 days was greater for other than white infants. Rates for white infants weighing 1501-2500 grams exceeded the comparable rates for other than white infants by 33 percent and 20 percent, respectively, for neonatal and postneonatal deaths. For infants weighing 2501 grams or more at birth, the rates were higher for other than white infants by 25 percent and 88 percent, respectively, for neonatal and postneonatal deaths. It is interesting to note that although the death rates for white infants under 28 days of age were greater than those for other than white infants in both of the low weight categories examined, the rate for all low weight infants (2500 grams or less) who died before 28 days was slightly greater for other than white infants (111.0 compared to 110.8). This is the result of a greater proportion of other than white infants born at weights under 1,501 grams where the infant death rates are much higher.

COMMUNICABLE DISEASE DEATHS

Although comprising a smaller proportion of deaths than they have in the past, communicable disease deaths continue to be a major concern. In 1980, deaths from all infectious and parasitic diseases numbered 536. As can be observed from Table 2.65, over half of these deaths were caused by septicemia (314 deaths). Tuberculosis, mycoses, and viral hepatitis caused 61, 22, and 16 deaths, respectively. When deaths attributed to late effects of tuberculosis are included, the number of deaths from tuberculosis rises to 71.

The distribution of infectious and parasitic disease deaths by age, race, and sex for 1980 is given in Table 2.66, and the corresponding death rates are shown in Table 2.67. Note that deaths to other than white persons accounted for 21.8 percent of all infectious and parasitic disease deaths but only 13.2 percent of deaths from all causes. The death rates were highest for persons aged 65 years and over (35.8 deaths per 100,000 population) and for infants under 1 year (10.9). Rates for white males were somewhat higher than those for white females, and rates for other than white persons were higher than those for white persons.

Deaths due to such diseases as diptheria, scarlet fever, streptococcal sore throat, small pox, typhoid fever, measles, poliomyelitus and others have been virtually eliminated not only in Michigan, but across the nation.

Table 2.65
Deaths From Selected Infectious and Parasitic Diseases, Michigan Residents, 1980

ICD LIST NUMBER	CAUSE OF DEATH	FREQUENCY
038	Septicemia	314
010-018	Tuberculosis	61
110-118	Mycoses	22
070	Viral Hepatitis	16
137	Late Effects of Tuberculosis	10
135	Sarcoidosis	9
046	Slow Virus Infection of Central Nervous System	9
053	Herpes Zoster	8
054	Herpes Simplex	6
040.0	Gas Gangrene	5
052	Chickenpox	5
036	Meningococcal Infection	4
136.3	Pneumocystosis	3
090-097	Syphilis	1
Residual 000-139	All Other Infectious and Parasitic Diseases	63
000-139	TOTAL	536

Table 2.66
Deaths Due to Infectious and Parasitic Diseases by Age, Race, and Sex, Michigan Residents, 1980

Age	Total	Male		Female	
		White	Other Than White	White	Other Than White
All Ages	536	231	56	188	61
Under 1 Year	16	6	1	6	3
1-19 Years	17	8	1	5	3
20-44 Years	43	11	9	14	9
45-64 Years	133	65	17	38	13
65 and Over	327	141	28	125	33

Table 2.67
Infectious and Parasitic Diseases Death Rates by Age, Race, and Sex, Michigan Residents, 1980

Age	Total	Male		Female	
		White	Other Than White	White	Other Than White
All Ages	5.8	6.0	8.4	4.7	8.4
Under 1 Year	10.9	10.0	7.0	10.4	21.3
1-19 Years	0.6	0.6	0.4	0.4	1.1
20-44 Years	1.3	0.8	3.7	1.0	3.3
45-64 Years	7.4	8.5	16.9	4.6	11.3
65 and Over	35.8	42.1	72.7	25.7	64.0

Table 4.7 illustrates trends in deaths from the major communicable diseases.

INJURY AT WORK

There were 185 deaths reported as resulting from injuries at work in 1980, 32 fewer than in the previous year. These include all cases in which the underlying cause of death was external and the injury was reported to have occurred at work, whether or not the injury was work-related. Table 2.68 gives the frequency of deaths due to injuries at work by place of occurrence. The most common site was a street or highway, with 48 deaths. Second in frequency were injuries taking place on industrial places and premises (47 deaths). There were 37 deaths from injuries at work occurring in public buildings and 15 from injuries taking place on farms.

The most frequent cause of death associated with injuries at work was motor vehicle traffic accidents, involving 34 deaths or 18.4 percent of all such deaths (Table 2.69). The second most common cause was homicide and legal intervention, accounting for 31 deaths and 16.8 percent of the total. Accidents caused by machinery resulted in 25 deaths, while accidental falls and accidents caused by electric current accounted for 17 and 15 deaths, respectively. Accidents caused by falling objects accounted for 8 injury at work deaths, while motor vehicle nontraffic accidents were the cause of an additional 6 deaths. There were also 6 suicide deaths which occurred at work.

LIFE EXPECTANCY

The life expectancy of a Michigan resident at birth is 73.4 years, based on 1980 mortality data and census population data. Females demonstrated a significantly greater longevity than males. In 1980 the life expectancy at birth was 70.0 years for males and 76.9 years for females. This results from the higher mortality rates of males at all ages.

Life expectancies by sex in selected years for Michigan and United States residents are presented in Table 2.70. It can be seen that longevity has increased greatly in Michigan since 1901, by 16.6 years for males and by 21.8 years for females. Females born in Michigan in 1901 could expect to live 1.7 years longer than their male counterparts. By 1950 the differential in life expectancy between the sexes was 5.5 years. This disparity increased to 7.6 years by 1971, remained constant through 1973, and by 1980 had declined to 6.9 years. Between 1971 and 1980 life expectancy for males increased by 2.7 years while for females the increase was

Table 2.68
Deaths Due to Injury at Work by Place of Injury, Michigan Residents, 1980

PLACE	NUMBER OF DEATHS
Street and Highway	48
Industrial Place and Premises	47
Public Building	37
Farm	15
Home	8
Place for Recreation and Sport	5
Mine and Quarry	4
Other Specified Places	21
Place Not Specified	-
TOTAL	185

Table 2.69
Deaths Due to Injury at Work by Cause of Death, Michigan Residents, 1980

ICD LIST NUMBER	CAUSE OF DEATH	NUMBER OF DEATHS	PERCENT
E810-E819	Motor Vehicle Traffic Accidents	34	18.4
E960-E978	Homicide and Legal Intervention	31	16.8
E919	Accidents Caused by Machinery	25	13.5
E880-E888	Accidental Falls	17	9.2
E925	Accidents Caused by Electric Current	15	8.1
E916	Struck Accidentally by Falling Object	8	4.3
E820-E825	Motor Vehicle Nontraffic Accidents	6	3.2
E950-E959	Suicide	6	3.2
E890-E899	Accident Caused by Fire and Flames	5	2.7
E913	Accidental Mechanical Suffocation	4	2.2
E923	Accident Caused by Explosive Material	4	2.2
E840-E845	Air and Space Transport Accidents	3	1.6
E928	Other and Unspecified Environmental and Accidental Causes	3	1.6
E910	Accidental Drowning and Submersion	3	1.6
E846-E848	Vehicle Accidents Not Elsewhere Classifiable	2	1.1
E830-E838	Water Transport Accidents	2	1.1
Residual E800-E949	All Other Accidents	17	9.2
	TOTAL	185	100.0

Table 2.70
Life Expectancy at Birth by Sex, Michigan and United States Residents, Selected Years, 1901-1980

UNITED STATES		YEAR	MICHIGAN	
MALE LIFE EXPECTANCY	FEMALE LIFE EXPECTANCY		MALE LIFE EXPECTANCY	FEMALE LIFE EXPECTANCY
47.6	50.6	1901	53.4	55.1
48.4	51.8	1910	53.9	56.2
53.6	54.6	1920	55.1[1]	56.0[1]
58.1	61.6	1930	59.8[1]	62.8[1]
60.8	65.2	1940	63.4[1]	67.4[1]
65.6	71.1	1950	65.7	71.2
66.6	73.1	1960	67.1	73.3
67.1	74.8	1970	67.2	74.6
67.4	75.0	1971	67.3	74.9
67.4	75.1	1972	67.3	74.9
67.6	75.3	1973	67.4	75.0
68.1	75.8	1974	68.0	75.3
68.7	76.5	1975	68.5	75.7
69.0	76.7	1976	69.0	75.9
69.3	77.1	1977	69.3	76.3
69.5	77.2	1978	69.6	76.4
---	---	1979	70.0	76.8
---	---	1980	70.0	76.9

1 - Michigan data for years 1920, 1930, and 1940 are for white persons only.

Table 2.71
Life Expectancy at Birth by Sex and Race, Michigan Residents, Selected Years 1950-1980

POPULATION SUBGROUP	YEAR			
	1950	1960	1970	1980
Total Population	68.3	70.0	70.8	73.4
Total Male	65.7	67.1	67.2	70.0
Total Female	71.2	73.3	74.6	76.9
Total White	68.8	70.5	71.6	74.2
White Male	66.2	67.5	68.2	70.9
White Female	71.9	74.0	75.3	77.5
Total All Other	61.8	65.6	65.0	69.3
All Other Male	60.4	63.6	61.0	65.3
All Other Female	63.4	67.7	69.4	73.3

2.0 years.

The life expectancy of Michigan residents was well above that for the nation in 1901, but this differential had virtually disappeared by 1950. In 1978 the life expectancy of males in Michigan was slightly above that for males nationwide, 69.6 years compared to 69.5 years, while longevity for females residing in this state was 0.8 years below the average for the country. Note that females have consistently demonstrated greater longevity than males both in Michigan and in the United States.

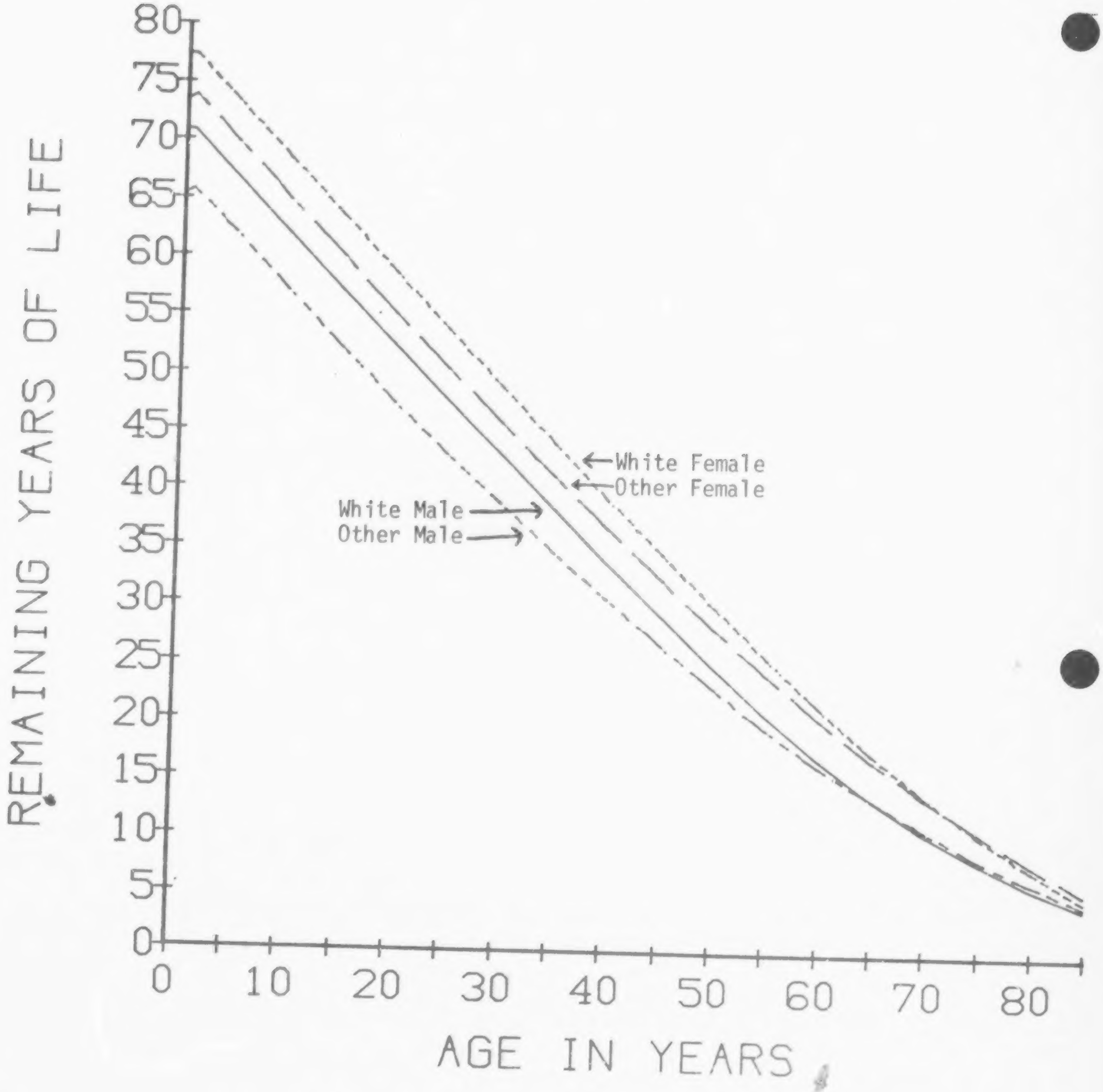
White persons displayed a life expectancy 4.9 years greater than other than white persons in 1980. The life expectancy of white males was 5.6 years greater than that of males of other races in 1980 compared to a differential of 5.8 years in 1950 (Table 2.71). In 1970 the differential was 7.2 years, due in part to an actual reduction in life expectancy for other than white males between 1960 and 1970. Since 1970 life expectancy for other than white males has increased 7.0 percent, from 61.0 to 65.3 years. This is a reflection of the recent decline in mortality rates for several leading causes of death for this group. The change in the differentials by race for female expectancies has been much more pronounced. In 1950, Michigan resident white females had an average longevity 8.5 years greater than females of all other races. This disparity declined to 4.2 years in 1980.

The expected number of years of life remaining are presented graphically by age, race, and sex in Figure 2.51. The number of years of life remaining for females is greater than that for males throughout life. At age 60 the differential is 4.5 years for white males and white females, and 4.1 years for other than white males and females. Other than white persons display slightly greater life expectancies in the older age intervals than their white counterparts. The average number of years remaining for other than white females surpasses that of white females between ages 70 and 75. Other than white males display a greater expectation than that of white males at ages 70 and over.

PLACE OF OCCURRENCE

There were 2,171 Michigan resident deaths in 1980 that occurred outside the state. This represents 2.9 percent of all resident deaths. 514 Michigan resident deaths occurred in the state of Florida in 1980. This is 23.7 percent of all resident out-of-state deaths, more than in any other area. The border areas of Indiana, Ohio, Wisconsin, and Canada accounted for 45.6 percent of all resident deaths outside Michigan. In addition to the above-mentioned areas,

FIGURE 2.51 - Remaining Years of Life by Age, Sex, and Race,
Michigan Residents, 1980



over 50 Michigan resident deaths also occurred in each of the following states: Minnesota, Illinois, California, Texas, and Arizona. Michigan resident deaths occurred in all but three of the 50 states in 1980 (Table 2.72).

Of the non-residents that died in Michigan in 1980, 45.0 percent were from the border areas, 17.5 percent were Floridians and 8.1 percent were from Illinois. Overall, non-residents who died in Michigan represented 45 states and several foreign countries.

Table 2.72
Michigan Resident Deaths Occurring Outside Michigan by Place of Occurrence and Death Occurring in Michigan to Non-Michigan Residents by Place of Residence, 1980

GEOGRAPHIC AREA	DEATHS OF RESIDENTS OCCURRING OUTSIDE MICHIGAN		DEATHS OF NONRESIDENTS OCCURRING IN MICHIGAN	
	NUMBER	PERCENT	NUMBER	PERCENT
Total	2,171[1]	100.0	1,036	100.0
Florida	514	23.7	181	17.5
Ohio	416	19.2	188	18.1
Indiana	309	14.2	94	9.1
Wisconsin	169[1]	7.8	137	13.2
Canada	95	4.4	47	4.5
Minnesota	65	3.0	8	0.8
Illinois	62	2.9	84	8.1
California	62	2.9	20	1.9
Texas	59	2.7	13	1.3
Arizona	53	2.4	17	1.6
Other Areas	367	16.9	247	23.8

1 - Includes 136 deaths reported too late for inclusion in the statistical file.

MARRIAGE & DIVORCE

SECTION III

MARRIAGE AND DIVORCE: AN OVERVIEW 1980

TOTAL MARRIAGES	86,898
TOTAL DIVORCES AND ANNULMENTS	45,047
MARRIAGE RATE[1]	18.8
DIVORCE RATE[1]	9.7
MEDIAN AGE OF THE BRIDE	23
MEDIAN AGE OF THE GROOM	25

1 - Number of persons married or divorced per 1,000 population.

MARRIAGES AND DIVORCES

The number of marriages and divorces occurring in Michigan has increased considerably since 1900. While the frequency of marriage has generally followed the growth of Michigan's population, the rate of persons dissolving their marriages has increased nearly fourfold since 1900. The smallest number of marriages in the years 1900 to 1980 was 23,295 in 1900, while the largest number was 94,486 in 1973. After steep declines in the number of marriages in 1974 and 1975, and a smaller decline in 1976, the number of marriages increased during each of the following three years. The number of marriages recorded in 1980 was 86,898, a decrease of 2.9 percent from the 1979 figure. The number of divorces and annulments has increased from a low of 2,435 in 1900 to a high of 45,047 in 1980. The 1980 figure represents an increase of 1.8 percent from the figure for 1979.

MARRIAGES

Since 1900, there have been noticeable changes in the marriage rates both nationally and in Michigan (Figure 3.1). The marriage rates observed for the state have generally followed the pattern of rising and falling rates observed nationally. Strong historic shifts in rates have been related most notably to the factors of war and the economy. The highest rates observed during this century were for the years immediately following the end of the two World Wars (27.7 in 1919 and 27.6 in 1946). The lowest rates occurred during the Great Depression of the 1930's. The number of persons married each year per 1,000 population was higher in Michigan than in the country for 19 of the 26 years from 1900 through 1925. Since 1926, Michigan's marriage rate has been lower than that of the nation, excepting only the years 1964 through 1969. The marriage rate for Michigan in 1980 was 18.8, 2.6 percent lower than the 1979 rate of 19.3 (Table 3.1). The provisional rate for the nation in 1980 was 21.7, an increase of 2.4 percent from the 1979 rate. The gap between the marriage rate for Michigan and that for the nation has increased in recent years. In 1977 the U.S. rate (including nonlicensed marriages registered in California) was 8.5 percent above that of Michigan. This percent increased to 9.8 in 1979, and in 1980 the provisional rate for the nation was 15.4 percent above Michigan's rate.

RESIDENCE OF COUPLES MARRYING IN MICHIGAN

When presenting statistics of births, deaths and fetal deaths it is possible to provide total resident figures due to an interstate agreement for exchange of nonresident event information. Thus, should a Michigan resident give birth in

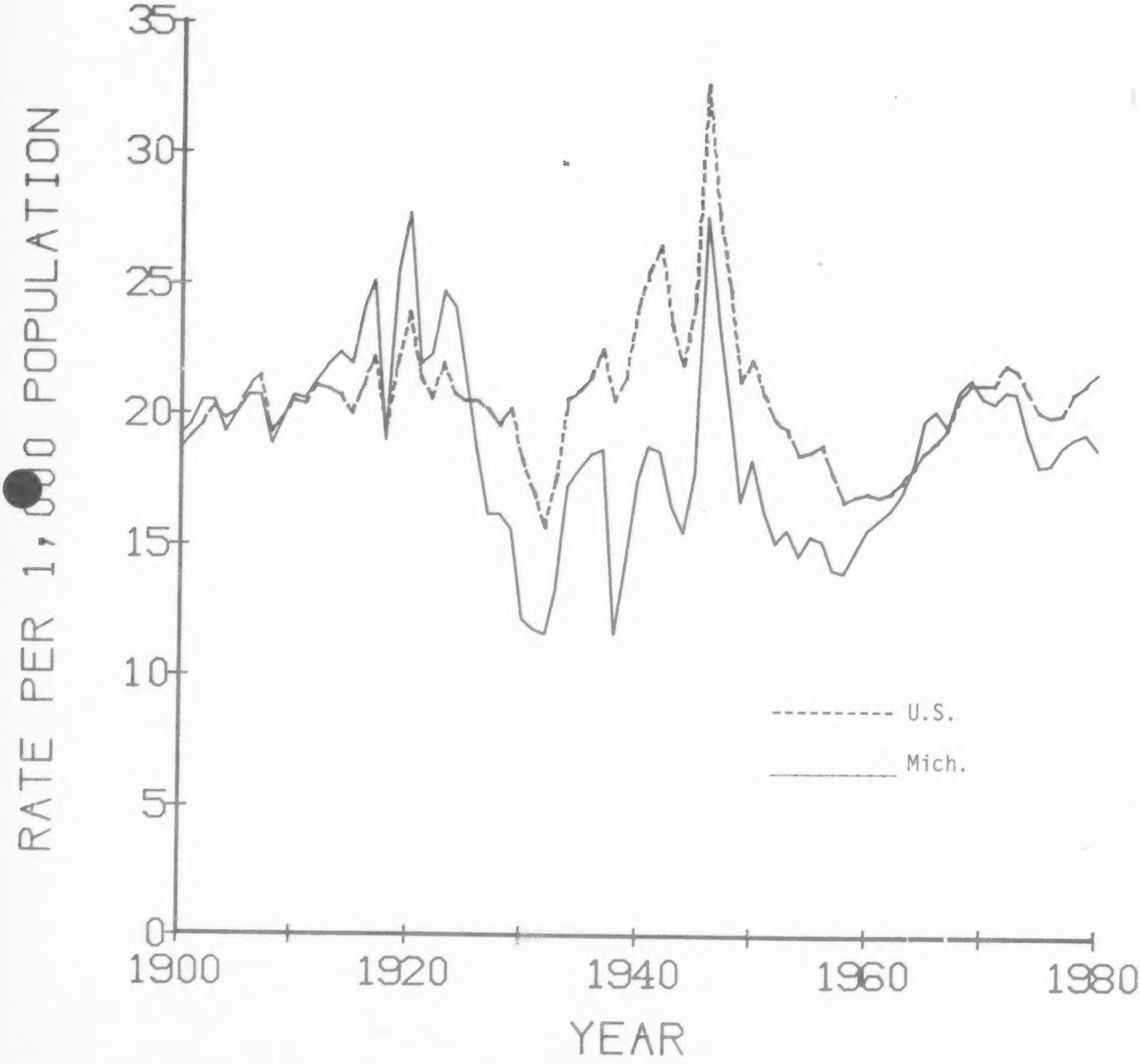
Table 3.1
Marriages and Marriage Rates[1], Michigan and United States Occurrences, Selected Years, 1920-1980

UNITED STATES		YEAR	MICHIGAN	
Number	Rate		Number	Rate
1,274,476	23.9	1920	50,805	27.7
1,126,856	18.3	1930	29,482	12.2
1,595,879	24.2	1940	46,342	17.6
1,667,231	22.1	1950	58,180	18.3
1,523,000	17.0	1960	61,090	15.6
1,548,000	16.9	1961	63,320	16.0
1,577,000	17.0	1962	65,002	16.4
1,654,000	17.5	1963	68,160	17.0
1,725,000	18.0	1964	73,911	18.2
1,800,000	18.6	1965	81,247	19.8
1,857,000	19.0	1966	83,903	20.2
1,927,000	19.5	1967	84,363	19.6
2,069,000	20.7	1968	90,984	21.0
2,145,000	21.2	1969	93,392	21.4
2,158,802	21.2	1970	91,933	20.7
2,190,481	21.2	1971	92,134	20.5
2,282,154	22.0	1972	94,447	20.9
2,284,108	21.8	1973	94,486	20.8
2,229,667	21.0	1974	88,023	19.3
2,152,662	20.2	1975	82,856	18.2
2,154,807	20.0	1976	82,753	18.2
2,178,367	20.1	1977	86,088	18.8
2,282,272	20.9	1978[2]	88,333	19.2
2,331,337	21.2	1979	89,450	19.3
2,413,000Pr	21.7Pr.	1980	86,898	18.8

1 - Number of persons married per 1,000 population.

2 - Beginning with 1978, marriage data for the United States include nonlicensed marriages registered in California. If nonlicensed marriages were included in the 1977 total, the marriage rate would increase from 20.1 to 20.4.

FIGURE 3.1 - Marriage Rates, Michigan and United States[1]
Occurrences, 1900-1980



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[1] United States rates for 1979 and 1980 are provisional.

some other state, the state will forward the information to Michigan. No such agreement exists for marriages. This is an important consideration when analyzing marriage statistics. The marriage data presented are drawn from all marriages performed in the state regardless of the couples' residence.

Table 3.2 indicates that, in general, most of the couples marrying in Michigan are residents of the state. For marriages occurring in Michigan in 1980 97.3 percent of the brides were residents of Michigan, while 94.4 percent of the grooms were residents of the state. These figures are somewhat higher than those for marriages occurring in Michigan in 1970. Over the decade the proportion of marriages where both the bride and groom are not residents has declined substantially. These data indicate that the general characteristics of marriages occurring in Michigan should be representative of marriage patterns for Michigan residents.

There were a total of 2,355 non-resident brides married in Michigan in 1980. The figure for grooms is double that of brides, numbering 4,824. Table 3.3 shows the most frequent residences of non-resident brides and grooms married in Michigan. The nearby states of Illinois, Indiana, Ohio and Wisconsin are the states of residence for 39 percent of all non-resident grooms and 48 percent of non-resident brides.

MONTH OF MARRIAGE

The number of marriages occurring in Michigan varies with the seasons. The most popular month for marriages in 1980 was August, with 13.6 percent of all marriage ceremonies being performed during this month. May and June were also popular choices, with 10.6 and 12.1 percent respectively of all marriages. Fewer marriages occurred during the winter months. The lowest figure was for January, with less than one third the number which occurred in August (Table 3.4)

AGE AT MARRIAGE

Examination of the data in Table 3.5 reveals that females generally marry at a younger age than do males. The number of females who marry before the age of 20 is over two and a half times the corresponding frequency for males. Between ages 20 and 24 the numbers of brides and grooms are similar. Among persons 25 and over, males marry more frequently than females. In 1980 the median age of brides marrying in Michigan was 23 years, while the 50th percentile for grooms was 25.

TABLE 3.2 - Marriages by Residence Status of Bride and Groom Michigan Occurrences, 1970 and 1980

RESIDENCE STATUS	1970		1980	
	Number	Percent	Number	Percent
Both Bride and Groom Residents.......	82,617	89.9	81,465	93.7
Bride Resident, Groom Non-Resident...	3,726	4.1	3,073	3.5
Groom Resident, Bride Non-Resident...	1,046	1.1	604	0.7
Both Bride and Groom Non-Residents...	4,525	4.9	1,751	2.0
Residence Status, Not Stated.........	19	0.0	5	0.0
Total..............................	91,933	100.0	86,898	100.0

TABLE 3.3 - Place of Residence of Non-resident Brides and Grooms

Marriages Occurring in Michigan, 1980

GEOGRAPHIC AREA	NON-RESIDENT BRIDE	NON-RESIDENT GROOM
California ✓	177	347
Florida	152	271
Illinois	225	418
Indiana	268	463
Minnesota	57	122
New York	55	174
Ohio	393	642
Texas	105	267
Wisconsin	249	370
Other U.S. Places	591	1,496
Foreign Countries	83	254
Total	2,355	4,824

Table 3.4 Marriages by Month, Michigan Occurrences, 1980

Month	Number	Percent
January	3,677	4.2
February	4,746	5.5
March	5,123	5.9
April	5,751	6.6
May	9,194	10.6
June	10,477	12.1
July	7,710	8.9
August	11,814	13.6
September	8,332	9.6
October	8,097	9.3
November	6 366	7.3
December	5,611	6.5
January - December	86,898	100.0

Table 3.5
Number of Marriages and Marriage Rates[1] by Age and Sex, Michigan Occurrences, 1970 and 1980

AGE	MALES			FEMALES		
	Number of Marriages 1980	Rate 1980	Rate 1970	Number of Marriages 1980	Rate 1980	Rate 1970
Under 20[2]	6,834	15.0	38.9	17,753	39.8	77.6
20-24	32,988	74.7	126.7	34,281	75.7	93.8
25-34	30,811	41.2	36.1	23,598	30.7	22.1
35-44	8,686	17.2	12.7	6,363	12.1	9.7
45 or Over	7,579	6.1	6.6	4,902	3.3	4.4
Not Stated	-	000	000	1	000	000
Total	86,898	19.2	21.1	86,898	18.3	20.3
Median Age at Last Birthday	25	000	000	23	000	000

1 - Number of persons married per 1,000 population.
2 - 15-19 population used to obtain rate.

Since 1970, there have been significant declines in the marriage rate for both sexes under the age of 25 years. The largest decline observed is for males under the age of 20 years for whom the marriage rate has dipped 61.4 percent. The comparable decline for females was 48.7 percent. The marriage rate declined by 41.0 percent and 19.3 percent respectively for males and females between the ages of 20 and 24. For persons between the ages of 25 and 44 the rates of marriage have increased since 1970 for both sexes, while rates for persons 45 and over have dropped.

The distribution of marriages by the age of bride and groom is shown in Table 3.6.

The data in Tables 3.7 and 3.8 indicate that there has been a rise in the age at first marriage, and a trend toward a younger age for remarriages among both males and females. Between 1970 and 1980 the median age at first marriage increased from 20 to 21 for brides and from 21 to 23 for grooms. In the same period the median age at remarriage dropped from 33 to 32 for brides and from 36 to 35 for grooms. The most frequent age group for first marriage was 20-24 for males in both 1970 and 1980. Among females, the modal age group in 1970 was under 20 years. For brides, data for 1980 indicate a shift in mode to the 20-24 year age group for first marriages. The most frequent age interval for remarriage among males was 45 years of age or older in 1970 and 35-44 years of age in 1980. For females the most frequent age of remarriage shifted from the 45 and over age group in 1970 to the 25-29 year age group in 1980.

REMARRIAGES

These changes in age at remarriage are associated with increases in the frequency of second and higher order marriages. In 1970, the percent of all marriages that were remarriages was 23.4 for brides and 24.2 for grooms. In 1980 comparable percents were 31.3 for brides and 33.4 for grooms. This change in the proportion of all marriages which are remarriages is displayed graphically in Figure 3.2. Between 1960 and 1965, the proportion of remarriages dropped. Since 1965, this proportion has increased. The increase in the period 1972 through 1975 was especially marked for both sexes.

As remarriages can only occur when a prior marriage has been terminated by divorce, annulment or death of a spouse, it is apparent that persons remarrying will be generally older. Tables 3.9 and 3.10 demonstrate that the order of marriage has a strong positive relationship with the age of both brides and grooms. Note, however, the downward shift between 1970 and 1980 in the age distribution for third and higher order marriages. The median age at marriage declined

Table 3.6 Marriages by Age of Bride and Age of Groom, Michigan Occurrences, 1980

Age of Groom	Total	Age of Bride												
		Under 20	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65-69	70 and Over	Not Stated
Total	86,898	17,753	34,281	15,977	7,621	3,960	2,403	1,574	1,097	772	626	477	356	1
Under 20	6,834	5,491	1,224	92	16	10	1	-	-	-	-	-	-	-
20-24	32,988	10,234	19,643	2,522	440	112	29	5	2	-	-	-	-	1
25-29	20,667	1,608	9,899	7,197	1,537	334	71	16	3	1	-	1	-	-
30-34	10,144	296	2,488	3,898	2,546	710	162	38	6	-	-	-	-	-
35-39	5,389	72	695	1,473	1,663	983	364	106	22	8	2	1	-	-
40-44	3,297	36	208	479	795	856	625	214	54	23	4	2	1	-
45-49	2,335	9	82	203	356	541	537	406	152	33	11	4	1	-
50-54	1,716	1	28	77	168	259	351	395	288	99	36	11	3	-
55-59	1,278	5	7	23	66	103	185	229	299	243	87	24	7	-
60-64	857	-	4	8	18	37	48	103	170	201	181	69	18	-
65-69	631	-	3	4	11	10	25	43	71	106	166	153	39	-
70 and Over	762	1	-	1	5	5	5	19	30	58	139	212	287	-
Not Stated	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Table 3.7
Age at First Marriage and Remarriage: Bride, Michigan Occurrences, 1970 and 1980

AGES	1970				1980			
	TOTAL	FIRST MARRIAGE	RE-MARRIAGE	NOT STATED	TOTAL	FIRST MARRIAGE	RE-MARRIAGE	NOT STATED
Under 20.....	33,870	33,384	437	49	17,753	17,541	208	4
Percent....	36.8	47.5	2.0	81.7	20.4	29.4	0.8	50.0
20-24........	35,089	30,823	4,260	6	34,281	30,620	3,659	2
Percent....	38.2	43.8	19.8	10.0	39.4	51.3	13.4	25.0
25-29........	8,284	4,079	4,204	1	15,977	8,895	7,082	-
Percent....	9.0	5.8	19.5	1.7	18.4	14.9	26.0	-
30-34........	3,862	995	2,867	-	7,621	1,781	5,839	1
Percent....	4.2	1.4	13.3	-	8.8	3.0	21.4	12.5
35-44........	4,956	636	4,318	2	6,363	575	5,787	1
ercent....	5.4	0.9	20.0	3.3	7.3	1.0	21.2	12.5
45 or Over...	5,867	396	5,469	2	4,902	244	4,658	-
Percent....	6.4	0.6	25.4	3.3	5.6	0.4	17.1	-
Not Stated...	5	4	1	-	1	-	1	-
Percent....	0.0	0.0	0.0	-	0.0	-	0.0	-
Total........	91,933	70,317	21,556	60	86,898	59,656	27,234	8
Percent....	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Median Age at Last Birthday	21	20	33	*	23	21	32	*

TABLE 3.8 - Age at First Marriage and Remarriage: Groom, Michigan Occurrences, 1970 and 1980

	1970				1980			
AGES	TOTAL	FIRST MARRIAGE	RE-MARRIAGE	NOT STATED	TOTAL	FIRST MARRIAGE	RE-MARRIAGE	NOT STATED
Under 20.......	16,962	16,865	52	45	6,834	6,810	21	3
Percent......	18.5	24.2	0.2	73.8	7.9	11.8	0.1	33.3
20-24..........	41,672	39,249	2,410	13	32,988	31,256	1,728	4
Percent......	45.3	56.4	10.8	21.3	38.0	54.0	5.9	44.4
25-29..........	13,811	9,423	4,387	1	20,667	14,654	6,013	-
Percent......	15.0	13.5	19.7	1.6	23.8	25.3	20.7	-
30-34..........	5,441	2,130	3,310	1	10,144	3,580	6,564	-
Percent......	5.9	3.1	14.9	1.6	11.7	6.2	22.6	-
35-44..........	6,223	1,264	4,959	-	8,686	1,108	7,576	2
Percent......	6.8	1.8	22.3	-	10.0	1.9	26.1	22.2
45 and Over....	7,824	705	7,118	1	7,579	432	7,147	-
Percent......	8.5	1.0	32.0	1.6	8.7	0.7	24.6	-
Not Stated.....	-	-	-	-	-	-	-	-
Percent......	-	-	-	-	-	-	-	-
Total..........	91,933	69,636	22,236	61	86,898	57,840	29,049	9
Percent......	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Median Age at Last Birthday	23	21	36	*	25	23	35	*

FIGURE 3.2 - Percent of all Marriages that are Remarriages, Michigan Occurrences, 1960-1980

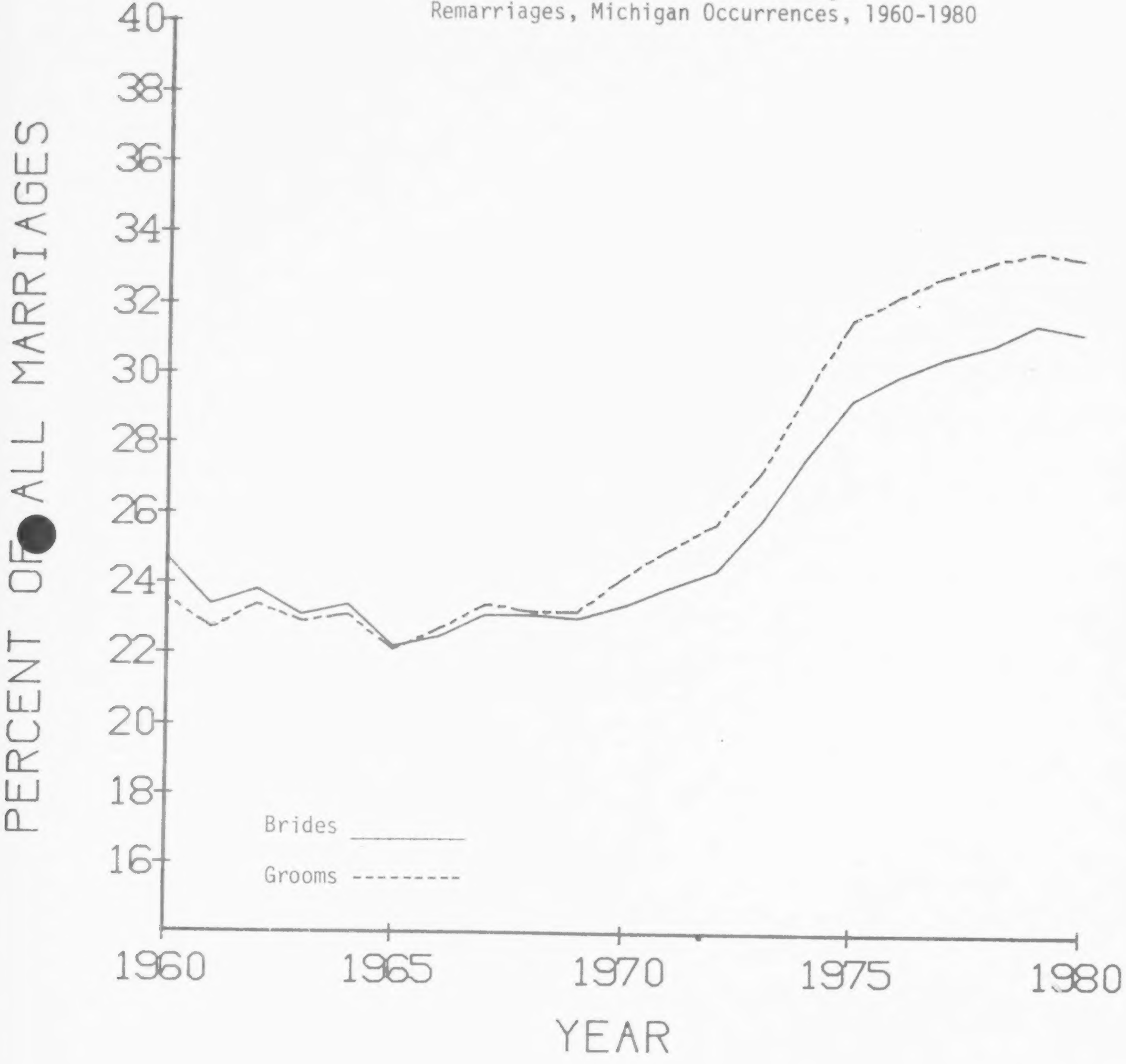


Table 3.9
Remarriages of Brides by Age and Order of Marriage, Michigan Occurrences, 1970 and 1980

AGES	1970				1980			
	ALL MARRIAGES	SECOND MARRIAGES	THIRD MARRIAGES	4TH OR MORE MARRIAGES	ALL MARRIAGES	SECOND MARRIAGES	THIRD MARRIAGES	4TH OR MORE MARRIAGES
All Ages....	91,933	17,103	3,669	784	86,898	21,604	4,607	1,023
Under 20....	33,870	434	3	-	17,753	207	1	-
20-24.......	35,089	4,030	216	14	34,281	3,483	167	9
25-29.......	8,284	3,624	518	62	15,977	6,293	712	77
30-34.......	3,862	2,265	509	93	7,621	4,586	1,064	189
35-39.......	2,670	1,648	491	117	3,960	2,448	878	218
40-44.......	2,286	1,443	501	118	2,403	1,496	563	184
45 or Over..	5,867	3,658	1,431	380	4,902	3,090	1,222	346
Not Stated..	5	1	-	-	1	1	-	-
Median Age at Last Birthday	21	30	40	44	23	30	36	40

Table 3.10
Remarriages of **Grooms** by Age and Order of Marriage, Michigan Occurrences, 1970 and 1980

AGES	1970				1980			
	ALL MARRIAGES	SECOND MARRIAGES	THIRD MARRIAGES	4TH OR MORE MARRIAGES	ALL MARRIAGES	SECOND MARRIAGES	THIRD MARRIAGES	4TH OR MORE MARRIAGES
All Ages....	91,933	18,074	3,495	667	86,898	23,015	4,952	1,082
Under 20....	16,962	50	2	-	6,834	21	-	-
20-24.......	41,672	2,332	77	1	32,988	1,680	48	-
25-29.......	13,811	4,017	357	13	20,667	5,530	458	25
30-34.......	5,441	2,790	458	62	10,144	5,449	992	123
35-39.......	3,306	2,009	452	87	5,389	3,391	982	198
40-44.......	2,917	1,799	515	97	3,297	2,063	750	192
45 or Over..	7,824	5,077	1,634	407	7,579	4,881	1,722	544
Not Stated..	-	-	-	-	-	-	-	-
Median Age at Last Birthday	23	34	43	48	25	33	39	45

by four years for both brides and grooms during this period for third marriages, while for fourth and higher order marriages the median age declined by four years for brides and by three years for grooms.

The frequency of remarriages among females increased by 26.3 percent between 1970 and 1980, while the number of brides who had been married at least three times previously increased by 30.5 percent. The increases for males were even more dramatic. Total remarriages increased by 30.6 percent and fourth or higher order marriages increased in frequency by 62.2 percent during the decade.

Changes in the frequency of remarriages have varied substantially in different age groups. Among persons under age 25 of both sexes the number of remarriages declined, with the largest relative declines occurring among those under age 20. The number of brides between ages 25 and 29 who had previously been married increased by 68.5 percent between 1970 and 1980, while that of grooms increased 37.1 percent. The largest relative increase in numbers of remarriages for males and females occurred in the age group 30-34 years (98.3 percent for males and 103.7 percent for females). Numbers of remarriages also increased substantially for persons 35-44 years of age. For females 45 and over the number of remarriages declined, while for males the frequency increased slightly.

FIRST MARRIAGES

First marriages are an interesting component of all marriages in that they constitute an event that can never be duplicated. The frequency of first marriages can not be directly affected by rates of divorce or deaths to married persons and as such reflects the propensity of the population as a whole to enter into marital agreements.

There has been a general decline in both the number and rate of first marriages between 1970 and 1980. The number of first marriages dropped 15.2 percent for women and 16.9 percent for men. The rate of first marriages dropped 18.7 percent for women and 20.0 percent for men. This downward trend in the number and rate of first marriages has not been consistent, however. For men and women, the number and rate of first marriages remained fairly constant between 1970 and 1972, dropped between 1972 and 1976, increased between 1976 and 1979, and fell in 1980 (Tables 3.11, 3.12, 3.13 and 3.14).

Changes in the frequency of first marriages have varied in different age groups. The greatest decline in first marriages occurred in the under 20 age group for both brides and grooms, and the decline has been consistent over the

Table 3.11
First Marriages by Age of Bride,
Michigan Occurrences, 1970-1980

AGE OF BRIDE	YEAR										
	1980	1979	1978	1977	1976	1975	1974	1973	1972	1971	1970
All Ages	59,656	61,281	60,956	59,832	57,860	58,554	63,564	70,076	71,373	70,022	70,317
15-19 Years[1]	17,541	19,531	20,858	22,341	23,208	24,723	28,238	32,658	33,948	33,227	33,384
20-24 Years	30,620	31,260	30,356	28,893	27,014	26,604	28,153	30,249	30,771	30,646	30,823
25-29 Years	8,895	8,059	7,412	6,348	5,634	5,189	5,094	5,036	4,615	4,138	4,079
30-34 Years	1,781	1,595	1,469	1,377	1,113	1,075	1,108	1,108	1,048	973	995
35-39 Years	415	402	418	385	381	422	382	395	403	408	413
40-44 Years	160	166	165	173	205	177	204	228	217	221	223
45-49 Years	95	110	104	118	126	132	152	154	139	153	158
50 or Over	149	156	173	197	177	229	233	247	228	254	238
Not Stated	-	2	1	-	2	3	-	1	4	2	4

1 - Brides under age 15 included in age 15-19.

Table 3.12
First Marriages by Age of Groom, Michigan Occurrences, 1970-1980

AGE OF GROOM	YEAR										
	1980	1979	1978	1977	1976	1975	1974	1973	1972	1971	1970
All Ages	57,840	59,356	58,806	57,737	55,962	56,655	61,884	68,682	70,120	69,091	69,636
15-19 Years	6,810	7,906	8,267	9,481	10,206	11,188	13,209	15,468	16,416	16,044	16,865
20-24 Years	31,256	32,501	32,900	32,269	30,961	31,327	34,283	38,436	39,641	39,692	39,249
25-29 Years	14,654	13,924	13,026	11,706	10,916	10,336	10,455	10,596	10,048	9,306	9,423
30-34 Years	3,580	3,360	2,996	2,653	2,288	2,157	2,208	2,289	2,139	2,056	2,130
35-39 Years	816	837	797	747	665	680	716	749	759	794	758
40-44 Years	292	332	297	324	343	322	339	418	415	454	506
45-49 Years	170	160	183	198	226	241	260	314	294	317	295
50 or Over	262	335	340	358	355	404	412	412	408	428	410
Not Stated	-	1	-	1	2	-	2	-	-	-	-

Table 3.13
First Marriage Rates[1] by Age of Bride, Michigan Occurrences, 1970-1980

AGE OF BRIDE	YEAR										
	1980	1979	1978	1977	1976	1975	1974	1973	1972	1971	1970
All Ages	12.6	12.9	12.9	12.8	12.4	12.6	13.7	15.1	15.5	15.3	15.5
15-19 Years[2]	39.3	43.8	46.9	50.4	52.5	55.8	63.6	73.7	76.9	75.5	76.5
20-24 Years	67.6	69.8	69.1	67.1	63.9	63.9	68.7	75.2	78.1	79.5	82.4
25-29 Years	21.8	20.1	19.1	16.8	15.4	14.5	14.7	15.0	14.2	13.1	13.6
30-34 Years	4.9	4.5	4.3	4.2	3.5	3.5	3.7	3.9	3.8	3.7	4.0
35-39 Years	1.4	1.4	1.5	1.4	1.4	1.6	1.4	1.5	1.6	1.6	1.7
40-44 Years	0.7	0.7	0.7	0.7	0.8	0.7	0.8	0.9	0.8	0.8	0.8
45-49 Years	0.4	0.5	0.4	0.5	0.5	0.5	0.6	0.6	0.5	0.6	0.6
50 or Over	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2

1 - Number of persons married per 1,000 population.

2 - Brides under 15 included in age 15-19.

Table 3.14
First Marriage Rates[1] by Age of Groom, Michigan Occurrences, 1970-1980

AGE OF GROOM	YEAR										
	1980	1979	1978	1977	1976	1975	1974	1973	1972	1971	1970
All Ages	12.8	13.2	13.1	12.9	12.6	12.7	13.9	15.5	15.9	15.7	16.0
15-19 Years	15.0	17.4	18.3	21.1	22.8	25.0	29.5	34.7	37.0	36.4	38.6
20-24 Years	70.8	75.0	78.1	78.8	77.7	80.7	90.6	104.6	111.4	115.3	119.4
25-29 Years	36.7	35.5	34.2	31.7	30.4	29.6	30.7	32.1	31.5	30.2	32.1
30-34 Years	10.3	9.9	9.1	8.4	7.5	7.3	7.7	8.3	8.1	8.1	8.9
35-39 Years	2.9	3.0	3.0	2.8	2.6	2.7	2.8	3.0	3.1	3.3	3.3
40-44 Years	1.3	1.4	1.3	1.4	1.4	1.3	1.4	1.7	1.6	1.8	2.0
45-49 Years	0.8	0.7	0.8	0.9	1.0	1.0	1.1	1.3	1.2	1.2	1.1
50 or Over	0.3	0.3	0.3	0.4	0.4	0.3	0.4	0.4	0.4	0.5	0.4

1 - Number of persons married per 1,000 population.

period 1972-1980. The number of first marriages in the under 20 age group dropped by 47.5 percent for brides and 59.6 percent for grooms between 1970 and 1980 while the corresponding rate for first marriages dropped 48.6 percent for brides and 61.1 percent for grooms. The number and rate of first marriages also declined substantially for grooms in the 20-24 age group. There were significant increases in the number and rate of first marriages of brides and grooms between ages 25 and 34. These increases were especially sharp during the latter half of the decade. Between 1975 and 1980 the number of first marriages increased by 41.8 percent and 66.0 percent for grooms aged 25-29 and 30-34 years respectively. For brides the comparable figures were 71.4 percent and 65.7 percent. Since 1970 the number of first marriages has declined for persons aged 40 or over.

AGE AT FIRST MARRIAGE

Age at first marriage declined for both brides and grooms between 1953 and the mid-1960's. This decline was greater for males than for females. Grooms were 34 months older than brides at the median in 1953, 23 months older in 1963 and 20 months older in 1968. During the past dozen years, the median age at first marriage has increased by a similar amount for both males and females. Grooms were 21 months older than brides at the median in 1980.

The median age at first marriage in 1980 was 21 years 8 months for brides and 23 years 5 months for grooms. The 1980 figures are the highest median ages at first marriage recorded during the period (Figure 3.3).

DIVORCES AND ANNULMENTS

The number of reported divorces and annulments reached a record high in 1980, both in Michigan and the nation. The figure of 45,047 for Michigan was 1.8 percent above the number for 1979. This increase may be due in part to more complete reporting in 1980. The provisional figure for the United States was only marginally higher than the final 1979 total (Table 3.15).

The number of divorces and annulments reported for Michigan in 1980 was 2.7 times the number for 1960. In recent years the number of divorces and annulments has begun to level off. Between 1960 and 1970 the number of divorces and annulments increased by 80 percent. During the decade of the seventies the increase was 50 percent. Between 1970 and 1975 the number of divorces and annulments increased by 36 percent, and from 1975 to 1980 the increase was 10 percent. During the latter period the only two annual declines since 1963 occurred.

FIGURE 3.3 Median Age at First Marriage by Sex,
Michigan Occurrences, 1953-1980

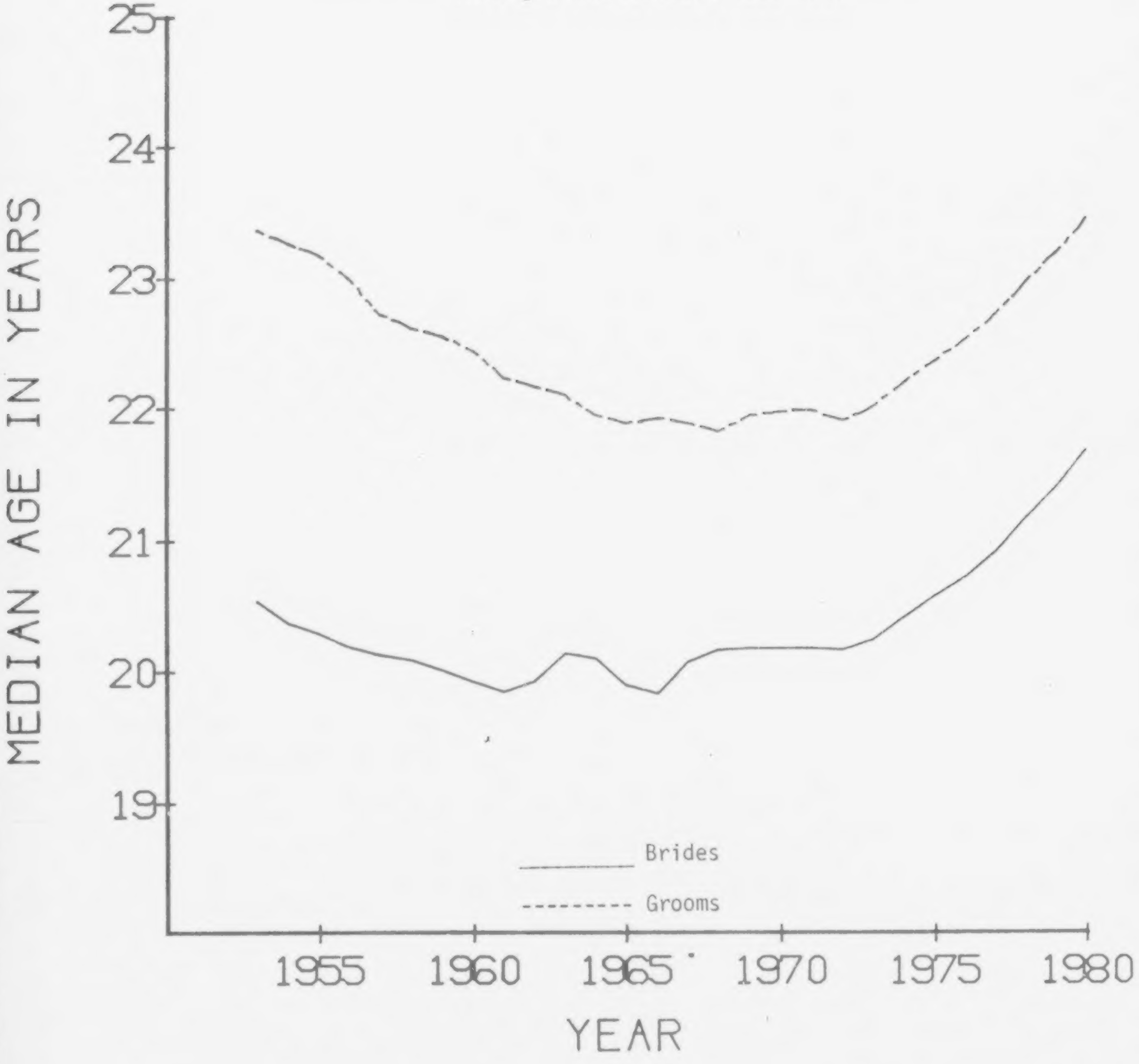


Table 3.15
Number of Divorces and Annulments, and Divorce and Annulment Rates[1], Michigan and United States Occurrences, Selected Years, 1920-1980

UNITED STATES		YEAR	MICHIGAN	
NUMBER	RATE		NUMBER	RATE
170,505	3.2	1920	8,679	4.7
195,961	3.2	1930	10,639	4.4
264,000	4.0	1940	12,054	4.6
385,144	5.1	1950	15,979	5.0
393,000	4.4	1960	16,565	4.3
414,000	4.5	1961	16,219	4.1
413,000	4.4	1962	17,500	4.4
428,000	4.5	1963	17,479	4.4
450,000	4.7	1964	19,400	4.8
479,000	4.9	1965	20,305	5.0
499,000	5.1	1966	21,727	5.2
523,000	5.3	1967	23,620	5.5
584,000	5.8	1968	25,400	5.9
639,000	6.3	1969	28,347	6.5
708,000	7.0	1970	29,934	6.7
773,000	7.5	1971	31,790	7.1
845,000	8.1	1972	35,505	7.9
915,000	8.7	1973	37,128	8.2
977,000	9.2	1974	39,940[2]	8.8[2]
1,036,000	9.7	1975	40,782	9.0
1,083,000	10.1	1976	43,101	9.5
1,091,000	10.1	1977	43,036	9.4
1,130,000	10.4	1978	45,029	9.8
1,181,000	10.7	1979	44,242	9.6
1,182,000Pr.	10.6Pr.	1980	45,047	9.7

1 - Number of persons whose marriages ended in divorce or annulment per 1,000 population.
2 - Estimate.

The number of persons divorced in Michigan per thousand population increased from 9.6 in 1979 to 9.7 in 1980, while the national rate decreased from 10.7 to 10.6. Michigan's divorce rate was higher than that for the United States each year from 1900 through 1947. In the following 33 years the Michigan divorce rate has been at or below the national rate 26 times, including each of the past 11 years (Table 3.15 and Figure 3.4). The lowest rate in this century for Michigan was 2.0 in the years 1900 and 1901 while the lowest national rate was 1.5 in 1900 and 1902. Since 1900 the divorce rate for Michigan was higher than that for 1980 only in 1946 (10.2) and 1978 (9.8). The United States rate for 1979 was the highest national rate for the 81 years examined.

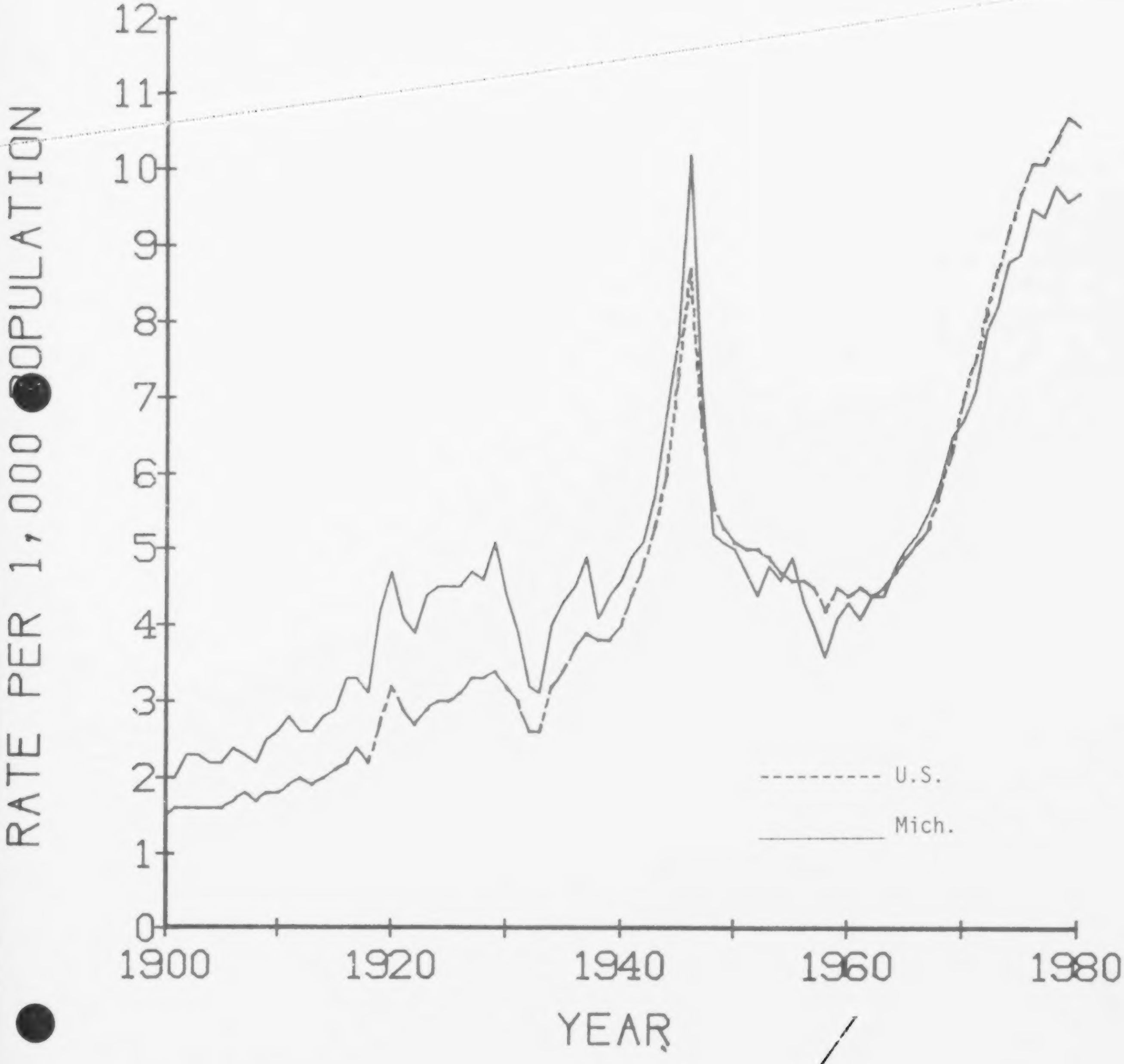
The number of children under 18 of couples dissolving marriages in 1980 was at least 46,603 (Table 3.16). This is a 13.8 percent increase since 1970. The number of children affected by divorce has steadily increased as a proportion of all children. This ratio increased from 6.5 per 1,000 Michigan children in 1960 to 12.6 in 1970 and 16.9 in 1980 (Table 3.17). The average number of children per divorce has, nonetheless, dropped from 1.37 children in 1970 to 1.04 in 1980. The decline primarily reflects a decline in the proportion of divorces involving three or more children. It should be noted that Michigan live birth data indicate that there has been a decline in the relative proportion of women having third or higher order live births over the past decade. Data for the United States indicate a similar pattern.

Approximately 25 percent of the persons divorced in 1980 in Michigan were from 25 to 29 years of age (Table 3.18). The median age for husbands was 32 years and 4 months, while the median age for wives was 27 months younger (30 years and 1 month). Nearly 24 percent of the wives were under 25 years of age compared to 14 percent of the husbands. Conversely, 5.5 percent of the wives were 50 years of age or older compared to 8.9 percent of the husbands.

In 12.6 percent of the marriages dissolved in Michigan in 1980 the couple separated less than one year after the marriage took place, and in nearly half of these marriages the separation took place within five years of the date of marriage (Table 3.19). The median duration of marriage at the time of dissolution was 7 years and 1 month. The median length of time between the date of separation and the date of dissolution of the marriage was 11 months.

Nearly nine tenths of all marriages dissolved in 1980 were first marriages (Table 3.20). Eight percent of the wives and 8.1 percent of the husbands were in their second marriage, while slightly over two percent of the persons

FIGURE 3.4 - Divorce Rates, Michigan and United States[1]
Occurrences, 1900-1980



[1] United States rates for 1979 and 1980 are provisional.

Table 3.16
Divorces and Annulments by Children Under 18 Present, Michigan Occurrences, 1970 and 1980

NUMBER OF CHILDREN	DIVORCES AND ANNULMENTS				PERCENTAGE OF TOTAL DIVORCES	
	1970	ESTIMATED TOTAL CHILDREN (MINIMUM)[1]	1980	ESTIMATED TOTAL CHILDREN (MINIMUM)[1]	1970	1980
Zero.............	11,459	-	15,379	-	38.3	34.4
One..............	6,941	6,941	10,762	10,762	23.2	24.1
Two..............	5,688	11,376	9,582	19,164	19.0	21.4
Three............	2,968	8,904	3,454	10,362	9.9	7.7
Four.............	1,580	6,320	1,052	4,208	5.3	2.4
Five or More.....	1,298	7,423	392	2,107	4.3	0.9
Not Stated.......	-	-	4,066	-	-	9.1
Total............	29,934	40,964	44,687[2]	46,603	100.0	100.0

1 - Total children for marriages involving 8 or more children under 18 is not available

2 - Excludes 360 records which were reported too late for inclusion in the statistical file.

Table 3.17

Estimated Number of Children Involved in Divorces and Annulments, Average Number of Children Per Divorce, and Rate per 1,000 Children Under 18 Years of Age: Michigan and United States, Selected Years 1960 - 1980

MICHIGAN				UNITED STATES		
Estimated Number of Children Involved	Average Number of Children Per Divorce	Rate per 1,000 Under 18 Years of Age	Year	Estimated Number of Children Involved	Average Number of Children Per Divorce	Rate per 1,000 Under 18 Years of Age
19,209	1.15	6.5	1960	463,000	1.18	7.2
40,964	1.37	12.6	1970	870,000	1.22	12.5
43,910	1.38	13.5[1]	1971	946,000	1.22	13.6
46,538	1.31	14.4[1]	1972	1,021,000	1.20	14.8
48,153	1.18	15.8[1]	1975	1,123,000	1.08	16.9
49,555	1.15	16.6[1]	1976	1,117,000	1.03	17.1
47,569	1.11	16.3	1977	1,095,000	1.00	17.0
48,510	1.08	17.0[1]	1978	1,147,000	1.01	18.1
47,019	1.07	16.8[1]	1979	1,181,000	1.00	18.9
46,603	1.04	16.9	1980[2]	---	---	---

1 - Revised data.

2 - There were 4,066 records on which the number of children under 18 years of age was not stated.

Table 3.18
Divorces and Annulments by Age of Husband and Wife at Time of Decree, Michigan Occurrences, 1980

Age	Husband		Wife	
	Number	Percent[1]	Number	Percent[1]
Total	44,687	100.0	44,687	100.0
Under 20	113	0.4	631	2.4
20-24	3,589	13.6	5,575	21.3
25-29	6,519	24.7	6,779	25.9
30-34	5,785	21.9	5,254	20.1
35-39	3,873	14.7	3,294	12.6
40-44	2,491	9.4	2,047	7.8
45-49	1,658	6.3	1,172	4.5
50-54	1,072	4.1	728	2.8
55-59	652	2.5	372	1.4
60-64	318	1.2	193	0.7
65-69	155	0.6	81	0.3
70-74	70	0.3	32	0.1
75+	66	0.3	32	0.1
Unknown	18,326	000	18,497	000
Median Age	32 years 4 months	000	30 years 1 month	000

[1] - Based on records with known age only.

Table 3.19

Divorces and Annulments by Duration of Marriage at Time of Separation and at Time of Dissolution, Michigan Occurrences, 1980

Duration in Years	At Time of Separation		At Time of Dissolution	
	Number	Percent[1]	Number	Percent[1]
Less than 1	4,883	12.6	1,709	3.8
1-4	13,907	35.7	14,596	32.8
5-9	9,291	23.9	12,259	27.6
10-14	4,840	12.4	6,991	15.7
15-19	2,727	7.0	3,830	8.6
20-24	1,703	4.4	2,407	5.4
25-29	951	2.4	1,477	3.3
30-34	384	1.0	744	1.7
35-39	150	0.4	273	0.6
40-44	47	0.1	102	0.2
45-49	14	0.0	34	0.1
50+	6	0.0	19	0.0
Unknown	5,784	000	246	000
Total	44,687	100.0	44,687	100.0
Median Duration	5 years 3 months	000	7 years 1 month	000

[1] - Based on records with known duration only.

Table 3.20
Divorces and Annulments by Number of Previous Marriages of Husband and Wife, Michigan Occurrences, 1980

Number of Previous Marriages	Husband		Wife	
	Number	Percent	Number	Percent
Total	44,687	100.0	44,687	100.0
0	39,613	88.6	39,732	88.9
1	3,624	8.1	3,569	8.0
2	775	1.7	742	1.7
3	167	0.4	154	0.3
4+	35	0.1	32	0.1
Unknown	473	1.1	458	1.0

divorced in 1980 had been married two or more times previously.

The median duration of marriages ended by divorce or annulment in 1980 declined as the number of previous marriages increased. For husbands in their first marriage the median duration was 7 years and 5 months, while for husbands who had been married four or more times previously the median was 2 years. A similar pattern was observed for wives, although the median durations for wives who had been married two or more times previously were somewhat higher than for their male counterparts (Table 3.21).

Table 3.21
Median Duration of Marriage at Time of Dissolution by Number of Previous Marriages of Husband and Wife, Divorces and Annulments Occurring in Michigan, 1980

Number of Previous Marriages	Husband	Wife
Total	7 years 1 month	7 years 1 month
0	7 years 5 months	7 years 5 months
1	4 years 9 months	4 years 9 months
2	3 years 4 months	3 years 7 months
3	2 years 3 months	3 years 1 month
4+	2 years 0 months	2 years 9 months
Unknown[1]	6 years 6 months	6 years 5 months

1 - On 473 records the number of previous marriages of the husband was unknown (1.1 percent of the total), and on 458 records (1.0 percent) the number of previous marriages of the wife was unknown.

REFERENCE APPENDIX

SECTION IV

TABLE 4.1

POPULATION, LIVE BIRTHS, DEATHS (ALL AGES, INFANT, NEONATAL, POSTNEONATAL, PERINATAL, FETAL, AND MATERNAL), MARRIAGES AND DIVORCES, MICHIGAN, 1900-1980

(Deaths exclusive of fetal deaths. Perinatal deaths include deaths under 1 week and fetal deaths. Divorces include annulments.)

Year	Population[1]	Live Births	DEATHS							Marriages	Divorces
			All Ages	Under 1 Year	Under 28 Days[2]	28-364 Days	Peri-natal	Fetal	Maternal		
1900	2,420,982	43,699	32,453	6,866				1,325	452	23,295	2,435
1901	2,459,901	43,221	32,834	6,319				1,501	531	24,079	2,448
1902	2,498,820	45,546	31,472	5,949				1,793	468	25,653	2,828
1903	2,537,739	46,020	33,176	6,488				1,814	427	26,029	2,945
1904	2,576,658	47,508	34,494	6,419				1,911	436	24,918	2,808
1905	2,615,578	46,976	34,679	7,054				2,044	416	26,307	2,825
1906	2,654,497	58,599	37,033	7,952				2,358	400	27,519	3,192
1907	2,693,416	59,029	36,701	6,906				2,358	391	27,940	3,107
1908	2,732,335	64,772	36,761	7,697				2,694	440	25,765	3,020
1909	2,771,254	64,323	36,313	7,443				2,540	405	27,353	3,516
1910	2,810,173	64,109	39,913	7,998				2,559	431	29,039	3,716
1911	2,895,997	65,756	38,007	7,131				2,716	451	29,859	4,125
1912	2,981,821	69,537	38,804	6,985				2,906	396	31,694	3,838
1913	3,067,645	73,058	40,827	7,659				2,953	528	33,529	3,978
1914	3,153,469	76,761	39,906	7,431				3,113	507	35,316	4,395
1915	3,239,293	81,100	40,441	6,943				3,357	488	35,527	4,757
1916	3,325,116	87,062	46,047	8,415				3,689	503	40,143	5,540
1917	3,410,940	89,419	47,236	7,916				3,550	586	42,791	5,627
1918	3,496,764	91,261	54,617	8,197				3,686	709	33,260	5,493
1919	3,582,588	84,062	45,636	7,560				3,361	578	45,579	7,469
1920	3,668,412	92,245	51,982	8,587				3,770	795	50,805	8,679
1921	3,785,799	96,035	44,186	7,584				3,669	605	41,508	7,676
1922	3,903,186	90,042	43,817	6,730				3,779	551	43,561	7,591
1923	4,020,573	92,956	49,333	7,477				3,657	583	49,569	8,745
1924	4,137,960	98,187	47,304	7,088	4,119	2,969	6,791	3,703	636	49,738	9,400
1925	4,255,347	98,983	49,417	7,498	4,022	3,476	6,667	3,670	629	46,276	9,650
1926	4,372,734	98,289	54,080	7,620	4,054	3,566	6,773	3,816	631	39,788	9,795
1927	4,490,121	99,940	50,600	6,766	3,915	2,851	6,794	3,834	667	36,276	10,617
1928	4,607,508	97,462	54,755	6,806	3,739	3,067	6,594	3,701	603	37,300	10,615
1929	4,724,895	98,695	56,117	6,605	3,777	2,828	6,613	3,710	617	36,816	12,094
1930	4,842,325	98,882	51,561	6,213	3,624	2,589	6,518	3,714	597	29,482	10,639
1931	4,883,703	90,547	49,068	5,187	3,084	2,103	5,643	3,220	539	28,856	9,507
1932	4,925,081	85,254	49,569	4,630	2,798	1,832	5,210	2,980	493	28,552	7,889
1933	4,966,459	80,482	48,507	4,094	2,591	1,503	4,906	2,776	447	33,132	7,671
1934	5,007,837	83,944	50,440	4,377	2,717	1,660	4,781	2,607	450	43,241	10,124
1935	5,049,216	87,403	51,051	4,170	2,550	1,620	4,832	2,717	438	45,313	10,844
1936	5,090,594	88,457	54,777	4,479	2,647	1,832	4,726	2,625	425	47,023	11,419
1937	5,131,972	91,566	53,468	4,374	2,700	1,674	4,919	2,707	326	47,954	12,472
1938	5,173,350	96,962	50,678	4,319	2,734	1,585	4,984	2,732	345	30,105	10,646
1939	5,214,728	94,432	52,017	3,952	2,594	1,358	4,706	2,572	280	37,725	11,589

TABLE 4.1 (continued)

Year	Population[1]	Live Births	DEATHS							Marriages	Divorces
			All Ages	Under 1 Year	Under 28 Days[2]	28-364 Days	Peri-natal	Fetal	Maternal		
1940	5,256,106	99,106	52,092	4,022	2,629	1,393	4,749	2,602	292	46,342	12,054
1941	5,437,546	107,498	52,671	4,166	2,687	1,479	4,991	2,769	298	50,989	13,317
1942	5,538,856	124,068	52,738	4,606	3,091	1,515	5,581	3,067	260	51,582	14,085
1943	5,377,329	125,441	56,774	4,804	2,979	1,825	5,563	3,213	237	44,385	15,259
1944	5,377,329	113,586	54,016	4,326	2,784	1,542	5,140	2,874	198	41,678	18,356
1945	5,435,092	111,557	53,641	4,008	2,670	1,338	4,906	2,703	166	48,329	21,133
1946	5,708,415	138,572	54,856	4,541	3,323	1,218	5,978	3,168	163	78,808	29,158
1947	6,069,000	160,275	56,807	5,055	3,677	1,378	6,583	3,422	173	71,319	21,386
1948	6,195,000	153,726	56,520	4,617	3,352	1,265	5,968	3,132	120	61,986	16,017
1949	6,352,000	156,469	57,107	4,520	3,232	1,288	5,746	2,994	105	53,109	16,274
1950	6,371,766	160,055	57,567	4,214	3,043	1,171	5,781	3,095	91	58,180	15,979
1951	6,545,000	172,451	59,181	4,505	3,296	1,209	6,088	3,158	94	53,411	15,446
1952	6,708,000	177,835	59,138	4,689	3,414	1,275	6,266	3,224	82	50,487	14,925
1953	6,852,000	182,968	62,087	4,728	3,369	1,339	6,188	3,180	79	53,308	16,537
1954	7,024,000	192,104	60,706	4,795	3,560	1,235	6,415	3,249	94	51,243	16,281
1955	7,236,000	196,294	63,087	4,873	3,707	1,166	6,381	3,029	61	55,698	17,676
1956	7,516,000	206,068	64,352	5,047	3,796	1,251	6,655	3,245	84	57,068	16,228
1957	7,803,000	208,488	66,435	5,093	3,884	1,209	6,668	3,154	79	55,121	15,442
1958	7,866,000	202,690	65,899	4,980	3,789	1,191	6,516	3,101	69	55,159	14,040
1959	7,960,000	198,301	66,812	4,846	3,674	1,172	6,250	2,928	72	58,826	16,168
1960	7,823,194	195,056	67,912	4,702	3,580	1,122	6,247	3,008	75	61,090	16,656
1961	7,903,000	192,825	67,375	4,604	3,475	1,129	5,875	2,735	78	63,320	16,219
1962	7,939,000	182,790	70,049	4,367	3,251	1,116	5,669	2,703	56	65,002	17,500
1963	8,030,000	178,871	72,438	4,150	3,109	1,041	5,407	2,540	71	68,160	17,479
1964	8,100,000	175,103	72,129	4,043	3,071	972	5,293	2,466	62	73,911	19,400
1965	8,199,283	166,464	73,665	3,936	2,909	1,027	5,139	2,475	54	81,247	20,305
1966	8,314,070	165,794	74,596	3,751	2,830	921	4,909	2,295	54	83,903	21,727
1967	8,615,000	162,756	75,360	3,595	2,714	881	4,693	2,195	52	84,363	23,620
1968	8,675,000	159,058	76,855	3,438	2,617	821	4,476	2,064	44	90,984	25,400
1969	8,734,000	165,760	76,693	3,356	2,550	806	4,488	2,175	27	93,392	28,347
1970	8,875,083	171,667	76,321	3,492	2,683	809	4,522	2,060	29	91,933	29,934
1971	8,972,000	162,244	77,395	3,157	2,412	745	4,139	1,923	32	92,134	31,790
1972	9,025,000	146,854	79,210	2,801	2,115	686	3,700	1,770	35	94,447	35,505
1973	9,072,000	141,550	78,522	2,561	1,902	659	3,392	1,682	26	94,486	37,128
1974	9,109,000	137,414	76,143	2,387	1,734	653	2,947[4]	1,438[4]	19	88,023	39,940[3]
1975	9,108,000	133,931	74,522	2,205	1,563	642	2,673[4]	1,356[4]	16	82,856	40,782
1976	9,117,000	131,378	75,801	1,978	1,424	554	2,495[4]	1,264[4]	14	82,753	43,101
1977	9,157,000	138,416	74,144	1,945	1,367	578	2,452[4]	1,284[4]	11	86,088	43,036
1978	9,202,000	138,802	74,773	1,931	1,281	650	2,319[4]	1,218[4]	15	88,333	45,029
1979	9,249,000	144,452	73,480	1,921	1,295	626	2,326	1,216	11	89,450	44,242
1980	9,262,078	145,162	74,991	1,851	1,284	567	2,276	1,176	16	86,898	45,047

[1] -1971-1979 population estimates have been revised by the U.S. Census Bureau.

[2] -For years prior to 1950 deaths under 1 month of age are included in deaths under 28 days.

[3] -Estimate.

[4] -Revised.

TABLE 4.2

LIVE BIRTH RATES, DEATH RATES (ALL AGES, INFANT, NEONATAL, POSTNEONATAL PERINATAL, AND MATERNAL), FETAL DEATH RATIOS, MARRIAGE AND DIVORCE RATES, MICHIGAN, 1900-1980[1]

(Birth rate, death rate for all ages, rate of persons married and rate of persons divorced per 1,000 population. Fetal death ratio, mortality rates for deaths under 1 year, under 28 days, and from 28-364 days per 1,000 live births. Maternal mortality rate per 10,000 live births. Perinatal mortality rate per 1,000 live births and fetal deaths.)

Year	Live Births	DEATHS							PERSONS	
		All Ages	Under 1 Year	Under 28 Days[2]	28-364 Days	Peri-natal	Fetal	Maternal	Married	Divorced
1900	18.1	13.4	157.1				30.3	103.4	19.2	2.0
1901	17.6	13.3	146.2				34.7	122.9	19.6	2.0
1902	18.2	12.6	130.6				39.4	102.8	20.5	2.3
1903	18.1	13.1	141.0				39.4	92.8	20.5	2.3
1904	18.4	13.4	135.1				40.2	91.8	19.3	2.2
1905	18.0	13.3	150.2				43.5	88.6	20.1	2.2
1906	22.1	14.0	135.7				40.2	68.3	20.7	2.4
1907	21.9	13.6	117.0				39.9	66.2	20.7	2.3
1908	23.7	13.5	118.8				41.6	67.9	18.9	2.2
1909	23.2	13.1	115.7				39.5	63.0	19.7	2.5
1910	22.8	14.2	124.8				39.9	67.2	20.7	2.6
1911	22.7	13.1	108.4				41.3	68.6	20.6	2.8
1912	23.3	13.0	100.4				41.8	56.9	21.3	2.6
1913	23.8	13.3	104.8				40.4	72.3	21.9	2.6
1914	24.3	12.7	96.8				40.6	66.0	22.4	2.8
1915	25.0	12.5	85.6				41.4	60.2	21.9	2.9
1916	26.2	13.8	96.7				42.4	57.8	24.1	3.3
1917	26.2	13.8	88.5				39.7	65.5	25.1	3.3
1918	26.1	15.6	89.8				40.4	77.7	19.0	3.1
1919	23.5	12.7	89.9				40.0	68.8	25.4	4.2
1920	25.1	14.2	93.1				40.9	86.2	27.7	4.7
1921	25.4	11.7	79.0				38.2	63.0	21.9	4.1
1922	23.1	11.2	74.7				42.0	61.2	22.3	3.9
1923	23.1	12.3	80.4				39.3	62.7	24.7	4.4
1924	23.7	11.4	72.2	41.9	30.2	66.7	37.7	64.8	24.1	4.5
1925	23.3	11.6	75.7	40.6	35.1	64.9	37.1	63.5	21.7	4.5
1926	22.5	12.4	77.5	41.2	36.3	66.3	38.8	64.2	18.7	4.5
1927	22.3	11.3	67.7	39.2	28.5	65.5	38.4	66.7	16.2	4.7
1928	21.2	11.9	69.8	38.4	31.5	65.2	38.0	61.9	16.2	4.6
1929	20.9	11.9	66.9	38.3	28.7	64.6	37.6	62.5	15.6	5.1
1930	20.4	10.6	62.8	36.6	26.2	63.5	37.6	60.4	12.2	4.4
1931	18.5	10.1	57.3	34.1	23.2	60.2	35.6	59.5	11.8	3.9
1932	17.3	10.1	54.3	32.8	21.5	59.0	35.0	57.8	11.6	3.2
1933	16.2	9.8	50.9	32.2	18.7	58.9	34.5	55.5	13.3	3.1
1934	16.8	10.1	52.1	32.4	19.8	55.2	31.1	53.6	17.3	4.0
1935	17.3	10.1	47.7	29.2	18.5	53.6	31.1	50.1	17.9	4.3
1936	17.4	10.8	50.6	29.9	20.7	51.9	29.7	48.0	18.5	4.5
1937	17.8	10.4	47.8	29.5	18.3	52.2	29.6	35.6	18.7	4.9
1938	18.7	9.8	44.5	28.2	16.3	50.0	28.2	35.6	11.6	4.1
1939	18.1	10.0	41.8	27.5	[illegible].4	48.5	27.2	29.6	14.5	4[illegible]

TABLE 4.2 (continued)

Year	Live Births	DEATHS							PERSONS	
		All Ages	Under 1 Year	Under 28 Days[2]	28-364 Days	Peri-natal	Fetal	Maternal	Married	Divorced
1940	18.9	9.9	40.6	26.5	14.1	46.7	26.3	29.5	17.6	4.6
1941	19.8	9.7	38.8	25.0	13.8	45.3	25.8	27.7	18.8	4.9
1942	22.4	9.5	37.1	24.9	12.2	43.9	24.7	21.0	18.6	5.1
1943	23.3	10.6	38.3	23.7	14.5	43.2	25.6	18.9	16.5	5.7
1944	21.1	10.0	38.1	24.5	13.6	44.1	25.3	17.4	15.5	6.8
1945	20.5	9.9	35.9	23.9	12.0	42.9	24.2	14.9	17.8	7.8
1946	24.3	9.6	32.8	24.0	8.8	42.2	22.9	11.8	27.6	10.2
1947	26.4	9.4	31.5	22.9	8.6	40.2	21.4	10.8	23.5	7.1
1948	24.8	9.1	30.0	21.8	8.2	38.0	20.4	7.8	20.0	5.2
1949	24.6	9.0	28.9	20.7	8.2	36.0	19.1	6.7	16.7	5.1
1950	25.1	9.0	26.3	19.0	7.3	35.4	19.3	5.7	18.3	5.0
1951	26.3	9.0	26.1	19.1	7.0	34.7	18.3	5.5	16.3	4.7
1952	26.5	8.8	26.4	19.2	7.2	34.6	18.1	4.6	15.1	4.4
1953	26.7	9.1	25.8	18.5	7.3	33.2	17.4	4.3	15.6	4.8
1954	27.3	8.6	25.0	18.5	6.4	32.8	16.9	4.9	14.6	4.6
1955	27.1	8.7	24.8	18.9	5.9	32.0	15.4	3.1	15.4	4.9
1956	27.4	8.6	24.5	18.4	6.1	31.8	15.7	4.1	15.2	4.3
1957	26.7	8.5	24.4	18.6	5.8	31.5	15.1	3.8	14.1	4.0
1958	25.8	8.4	24.6	18.7	5.9	31.7	15.3	3.4	14.0	3.6
1959	24.9	8.4	24.4	18.5	5.9	31.1	14.8	3.6	14.8	4.1
1960	24.9	8.7	24.1	18.4	5.8	31.5	15.4	3.8	15.6	4.3
1961	24.4	8.5	23.9	18.0	5.9	30.0	14.2	4.0	16.0	4.1
1962	23.0	8.8	23.9	17.8	6.1	30.6	14.8	3.1	16.4	4.4
1963	22.3	9.0	23.2	17.4	5.8	29.8	14.2	4.0	17.0	4.4
1964	21.6	8.9	23.1	17.5	5.6	29.8	14.1	3.5	18.2	4.8
1965	20.3	9.0	23.6	17.5	6.2	30.4	14.9	3.2	19.8	5.0
1966	19.9	9.0	23.6	17.1	5.6	29.2	13.8	3.3	20.2	5.2
1967	18.9	8.7	22.1	16.7	5.4	28.4	13.5	3.2	19.6	5.9
1968	18.3	8.9	21.6	16.5	5.2	27.8	13.0	2.8	21.0	5.9
1969	19.0	8.8	20.2	15.4	4.9	26.7	13.1	1.6	21.4	6.5
1970	19.3	8.6	20.3	15.6	4.7	26.0	12.0	1.7	20.7	6.7
1971	18.1	8.6	19.5	14.9	4.6	25.2	11.9	2.0	20.5	7.1
1972	16.3	8.8	19.1	14.4	4.7	24.9	12.1	2.4	20.9	7.9
1973	15.6	8.7	18.1	13.4	4.7	23.7	11.9	1.8	20.8	8.2
1974	15.1	8.4	17.4	12.6	4.8	21.2[4]	10.5[4]	1.4	19.3	8.8[3]
1975	14.7	8.2	16.5	11.7	4.8	19.8[4]	10.1[4]	1.2	18.2	9.0
1976	14.4	8.3	15.1	10.8	4.2	18.8[4]	9.6[4]	1.1	18.2	9.5
1977	15.1	8.1	14.1	9.9	4.2	17.6	9.3	0.8	18.8	9.4
1978	15.1	8.1	13.9	9.2	4.7	16.6	8.8	1.1	19.2	9.8
1979	15.6	7.9	13.3	9.0	4.3	16.0	8.4	0.8	19.3	9.6
1980	15.7	8.1	12.8	8.8	3.9	15.6	8.1	1.1	18.8	9.7

[1]-1971-1979 birth, death, marriage and divorce rates have been recalculated using revised population estimates.
[2]-For years prior to 1950 deaths under 1 month of age are included in deaths under 28 days.
[3]-Estimate.
[4]-Revised.

TABLE 4.3

NUMBER OF LIVE BIRTHS BY AGE OF MOTHER
MICHIGAN RESIDENTS, 1920-1980

YEAR	AGE OF MOTHER									
	ALL AGES¹	10-14	15-19	20-24	25-29	30-34	35-39	40-44	45+	AGE NOT STATED
1920	92,740	34	8,129	26,344	26,251	17,521	10,427	3,523	336	175
1921	96,322	39	8,747	26,583	27,292	18,433	11,150	3,572	337	169
1922	90,209	28	8,125	24,575	25,154	17,690	10,584	3,485	343	225
1923	93,066	37	8,725	25,887	25,459	18,072	10,770	3,476	382	258
1924	98,025	38	9,877	28,000	25,781	18,707	11,395	3,682	321	224
1925	99,220	62	10,248	28,116	26,204	18,869	11,406	3,695	379	241
1926	98,781	76	10,496	28,479	25,876	18,444	11,219	3,568	354	269
1927	100,178	59	10,685	29,302	25,707	18,790	11,287	3,722	332	294
1928	97,797	54	10,788	28,895	25,003	17,953	10,913	3 558	315	318
1929	99,134	56	11,312	30,582	25,557	16,957	10,555	3,523	293	299
1930	99,325	60	11,476	29,956	25,861	17,125	10,684	3,582	291	290
1931	90,929	61	10,109	27,255	23,806	15,937	9,905	3,317	302	237
1932	85,736	62	9,297	25,686	22,608	14,988	9,314	3,250	291	240
1933	80,923	52	8,642	23,874	21,618	14,298	8,795	3,173	261	210
1934	83,925	48	9,039	25,458	22,507	14,968	8,391	3,050	259	205
1935	87,446	47	9,808	27,631	22,938	15,026	8,473	3,029	284	210
1936	88,427	53	9,764	28,681	23,584	14,814	8,194	2,866	274	197
1937	91,539	54	10,524	30,532	24,366	15,022	7,949	2,653	242	197
1938	96,963	64	11,024	32,581	26,116	15,690	8,397	2,698	253	140
1939	94,302	51	10,368	31,036	26,095	15,976	8,021	2,416	209	130
1940	99,021	51	10,671	32,960	27,860	16,549	8,146	2,390	202	192
1941	107,458	50	11,309	36,833	31,067	17,132	8,351	2,361	200	155
1942	123,886	66	12,721	43,947	36,034	19,367	8,985	2,445	202	119
1943	125,778	67	11,934	41,627	37,773	21,449	9,980	2,615	184	149
1944	114,700	76	10,113	36,096	33,654	21,094	10,636	2,714	182	135
1945	112,655	73	9,294	32,790	33,143	22,831	11,185	2,970	229	140
1946	139,277	72	10,899	45,999	41,985	25,184	11,811	3,002	223	102
1947	161,085	91	15,594	55,954	47,793	26,296	12,009	3,073	182	93
1948	154,730	95	16,245	53,520	45,059	25,268	11,391	2,888	173	91
1949	157,178	117	16,404	53,608	46,363	25,971	11,565	2,906	181	63
1950	160,955	111	16,310	53,442	48,186	27,422	12,392	2,831	169	92
1951	173,506	104	17,974	57,340	52,044	29,674	13,086	3,040	160	84
1952	178,634	134	17,206	58,012	54,198	31,756	13,880	3,176	220	52
1953	182,810	166	18,510	58,070	54,734	32,948	14,798	3,350	190	44
1954	192,332	208	20,522	60,776	55,962	35,152	15,862	3,598	220	32
1955	196,623	195	21,417	61,952	56,462	35,968	16,554	3,862	198	15
1956	206,226	192	22,808	66,332	58,392	36,870	17,282	4,172	164	14
1957	208,808	190	23,798	67,086	58,424	36,980	17,956	4,160	200	14
1958	202,900	222	23,034	65,834	55,130	36,278	17,892	4,236	196	18
1959	198,576	200	21,922	65,426	53,434	34,934	18,030	4,424	198	8

TABLE 4.3 (continued)

YEAR	AGE OF MOTHER								
	ALL AGES[1]	10-14	15-19	20-24	25-29	30-34	35-39	40-44	45+	AGE NOT STATED
1960	195,056	186	22,786	65,108	51,842	33,228	17,410	4,288	202	6
1961	192,825	212	23,891	64,336	50,277	32,456	17,067	4,363	203	20
1962	182,790	268	22,702	62,243	47,109	29,817	16,160	4,250	224	17
1963	178,871	210	21,686	62,834	46,063	28,364	15,117	4,359	229	9
1964	175,103	264	22,526	62,196	44,671	26,542	14,509	4,162	220	13
1965	166,464	267	24,653	59,439	40,693	23,767	13,528	3,886	211	20
1966	165,794	310	28,690	60,711	39,225	21,205	11,846	3,547	223	37
1967	162,756	316	27,267	61,541	40,052	19,840	10,479	3,059	178	24
1968	159,058	400	26,390	60,072	41,561	18,613	9,095	2,739	163	25
1969	165,760	421	28,061	63,376	44,615	18,535	8,157	2,433	134	28
1970	171,667	489	29,764	65,892	46,262	19,003	7,904	2,223	118	12
1971	162,244	472	28,480	62,367	43,639	18,259	6,975	1,926	112	14
1972	146,854	503	28,108	54,199	40,442	16,133	5,805	1,555	35	14
1973	141,550	569	27,808	51,284	39,845	15,520	5,163	1,277	62	22
1974	137,414	501	25,977	49,975	40,215	15,317	4,291	1,063	50	25
1975	133,931	463	24,509	48,675	40,061	14,891	4,273	982	54	23
1976	131,378	404	22,593	47,161	41,412	14,893	4,053	799	47	16
1977	138,416	426	22,585	49,740	43,346	17,293	4,178	771	51	26
1978	138,802	345	21,487	49,498	43,744	18,367	4,562	729	50	20
1979	144,452	355	21,239	51,319	46,084	19,962	4,720	715	41	17
1980	145,162	331	20,000	51,218	47,113	21,024	4,692	740	22	22

[1]-Total live births for the years 1920 through 1959 differ from figures in Table 4.1 as they are derived from outside sources. Live births by age of mother were not tabulated in Michigan prior to 1960. These data were obtained from the following sources:

1920-1923:	Unpublished tables from the National Center for Health Statistics.
1924-1932:	Bureau of the Census publication, Birth, Stillbirth and Infant Mortality Statistics for Birth Registration Areas of the United States.
1933-1936:	Unpublished tables from the National Center for Health Statistics.
1937-1949:	Bureau of the Census publication, Vital Statistics of the United States series.
1950-1959:	Department of Health Education and Welfare publication, Vital Statistics of the United States series.

TABLE 4.4

LIVE BIRTH RATES BY AGE OF MOTHER
MICHIGAN RESIDENTS, 1920-1980[1]

(Live birth rates are per 1,000 women per year. Total fertility rate is total children to 1,000 women in their lifetime assuming constant live birth rates.)

Year	AGE OF MOTHER								Total Fertility Rate
	10-14	15-19	20-24	25-29	30-34	35-39	40-44	45+[2]	
1920	0.2	55.7	173.1	164.0	124.2	83.8	34.3	3.8	3,195.5
1921	0.2	56.9	167.3	165.5	125.8	84.8	32.8	3.6	3,184.5
1922	0.2	50.8	149.6	149.1	117.3	77.1	30.7	3.5	2,891.5
1923	0.2	52.6	152.6	147.5	116.5	75.4	29.3	3.8	2,889.5
1924	0.2	57.4	160.0	146.1	117.3	76.7	29.9	3.1	2,953.5
1925	0.3	57.4	155.9	145.4	115.2	73.9	28.8	3.5	2,902.0
1926	0.4	56.9	153.3	140.5	109.7	70.1	26.8	3.2	2,804.5
1927	0.3	56.0	153.3	136.8	108.9	68.1	27.0	2.9	2,766.5
1928	0.2	54.8	147.1	130.3	101.5	63.7	25.0	2.6	2,626.0
1929	0.2	55.7	151.5	130.6	93.6	59.6	23.9	2.4	2,587.5
1930	0.3	55.2	145.5	130.2	92.8	58.9	23.7	2.3	2,544.5
1931	0.3	47.8	130.4	118.3	85.3	54.3	21.5	2.3	2,301.0
1932	0.3	43.4	121.5	111.2	79.4	50.8	20.8	2.2	2,148.0
1933	0.2	39.7	111.6	105.2	75.0	47.7	20.0	1.9	2,006.5
1934	0.2	41.0	117.6	108.4	77.8	45.3	18.9	1.8	2,055.0
1935	0.2	43.9	126.2	109.4	77.4	45.5	18.5	2.0	2,115.5
1936	0.2	43.1	129.5	111.4	75.5	43.8	17.3	1.8	2,113.0
1937	0.2	45.9	136.4	113.9	75.9	42.3	15.8	1.6	2,160.0
1938	0.3	47.4	143.9	120.9	78.5	44.4	15.8	1.6	2,264.0
1939	0.2	44.1	135.6	119.6	79.2	42.3	14.0	1.3	2,181.5
1940	0.2	44.9	142.8	126.8	81.5	42.8	13.7	1.2	2,269.5
1941	0.2	48.1	157.8	137.1	81.6	42.5	13.2	1.2	2,408.5
1942	0.3	54.5	186.6	155.3	89.9	44.7	13.4	1.2	2,729.5
1943	0.3	51.6	175.1	159.0	97.1	48.6	14.1	1.1	2,734.5
1944	0.3	44.1	150.5	138.5	93.2	50.6	14.3	1.0	2,462.5
1945	0.3	40.8	135.5	133.4	98.5	52.1	15.4	1.3	2,386.5
1946	0.3	48.3	188.5	165.3	106.2	53.8	15.3	1.2	2,894.5
1947	0.4	69.7	227.3	184.2	108.4	53.6	15.4	1.0	3,300.0
1948	0.4	73.2	215.5	170.0	101.9	49.8	14.2	1.0	3,130.0
1949	0.5	74.6	214.0	171.4	102.5	49.6	14.1	1.0	3,138.5
1950	0.5	74.6	212.0	175.5	106.5	52.3	13.6	0.9	3,179.5
1951	0.4	79.1	229.0	192.2	114.4	53.9	14.1	0.8	3,419.5
1952	0.5	73.5	233.0	202.5	121.7	56.1	14.4	1.1	3,514.0
1953	0.6	76.8	234.5	207.0	125.5	58.7	14.9	0.9	3,594.5
1954	0.7	82.8	246.8	214.1	133.1	61.8	15.6	1.1	3,780.0
1955	0.6	84.1	253.0	218.6	135.4	63.4	16.4	0.9	3,862.0
1956	0.6	87.2	272.4	228.9	138.0	65.0	17.4	0.8	4,051.5
1957	0.6	88.6	277.1	231.8	137.6	66.4	17.0	0.9	4,100.0
1958	0.6	83.6	273.4	221.5	134.3	65.0	17.2	0.9	3,982.5

TABLE 4.4 (continued)

Year	AGE OF MOTHER								Total Fertility Rate
	10-14	15-19	20-24	25-29	30-34	35-39	40-44	45+[2]	
1959	0.6	77.6	273.3	217.4	128.6	64.4	17.3	0.9	3,900.5
1960	0.5	79.3	273.1	213.0	121.8	61.4	16.6	0.9	3,833.0
1961	0.6	78.1	252.0	200.7	120.2	61.3	16.8	0.9	3,653.0
1962	0.7	70.7	231.5	183.9	111.4	58.9	16.3	0.9	3,371.5
1963	0.5	64.6	222.5	175.9	107.0	55.9	16.6	0.9	3,219.5
1964	0.6	64.2	210.1	167.0	101.0	54.4	15.8	0.9	3,070.0
1965	0.6	67.4	192.0	149.0	91.2	51.5	14.7	0.8	2,836.0
1966	0.7	75.4	187.9	140.7	82.1	45.8	13.4	0.9	2,734.5
1967	0.7	69.0	182.8	140.8	77.6	41.2	11.5	0.7	2,621.5
1968	0.9	64.3	171.5	143.2	73.4	36.3	10.2	0.6	2,502.0
1969	0.9	66.0	174.2	150.8	73.8	33.1	9.1	0.5	2,542.0
1970	1.0	68.2	176.2	154.2	76.2	32.4	8.3	0.4	2,584.5
1971	1.0	64.7	161.7	138.6	69.1	27.9	7.2	0.4	2,353.0
1972	1.1	63.7	137.6	124.1	58.6	22.8	5.9	0.4	2,071.0
1973	1.2	62.8	127.5	118.3	54.2	19.9	4.9	0.2	1,945.0
1974	1.1	58.5	121.9	115.7	51.5	16.3	4.1	0.2	1,846.5
1975	1.1	55.3	117.0	112.3	48.4	16.0	3.9	0.2	1,771.0
1976	0.9	51.1	111.6	113.0	46.9	15.0	3.2	0.2	1,709.5
1977	1.0	50.9	115.5	114.9	52.6	15.2	3.1	0.2	1,767.0
1978	0.8	48.3	112.7	112.6	54.0	16.3	3.0	0.2	1,739.5
1979	0.9	47.6	114.6	115.2	56.7	16.6	3.0	0.2	1,774.0
1980	0.8	44.8	113.1	115.6	58.4	16.4	3.1	0.1	1,761.5

[1]-1971-1979 rates have been recalculated using revised population estimates.
[2]-Number of live births to women aged 45 and over per 1,000 women 45-49 years of age.

SOURCE: Population figures used for 1920-1970 rates are from General Population Characteristics, Michigan, USBC, 1971, with arithmetic extrapolation between census years. For 1971-1980 population source, see Technical Notes.

TABLE 4.5
REPORTED CASES OF CERTAIN COMMUNICABLE DISEASES
MICHIGAN RESIDENTS. 1900-1980

Year	Diptheria	Streptococcal Sore Throat (Including Scarlet Fever)	Smallpox	Typhoid Fever	Whooping Cough	Measles	Hepatitis, Infectious and Serum	Tuberculosis (all forms) *	Meningococcal Infections *	Poliomyelitis	Syphilis	Gonorrhea	Chancroid
1900	2.706	6,734	694	5,122	3,375	20,356		2,721	654				
1901	2,498	7,726	5,088	3,002	2,955	4,629		2,915	506				
1902	2.993	6,582	7,086	2,456	3,534	11,978		2,658	528				
1903	3.670	5,353	6,341	2,840	4,172	8,941		2,745	525				
1904	3.510	4,088	5,753	3,028	1,779	10,386		2,928	448				
1905	2,159	2,286	2,985	2,774	1,196	6,061		2,590	577				
1906	3,648	3,066	1,240	3,163	1,364	7,403		2,653	533				
1907	2,935	2,514	1,712	1,953	872	12,139		2,699	575				
1908	26,58	3,087	2,306	2,656	1,248	4,775		2,705	487				
1909	3,109	5,153	1,533	2,694	1,054	9,047		3,423	457				
1910	3,433	6,501	3,319	3,361	1,136	13,934		4,415	522	104			
1911	3,762	5,177	898	2,660	1,897	9,639		5,254	478	68			
1912	3,294	4,533	1,127	2,847	1,255	2,834		1,958	88	78			
1913	5,505	4,140	1,995	2,253	929	9,185		1,920	165	56			
1914	5,149	3,769	1,527	2,167	1,822	11,356		2,566	205	49			
1915	4,386	3,402	1,094	1,956	2,258	4,438		3,648	107	95			
1916	5,625	6,932	1,581	2,513	1,837	12,143		7,076	163	598			
1917	8,499	14,322	3,674	1,723	3,211	14,472		4,856	75	91			
1918	6,128	5,944	5,241	1,339	2,563	6,726		3,655	95	121			
1919	7,896	6,269	2,381	1,254	1,829	8,885		4,231	75	155	5,077	7,910	186
1920	10,360	10,280	4,818	1,421	7,171	22,364		4,994	203	67	8,117	11,463	262
1921	12,075	10,893	4,512	1,837	6,696	3,043		5,708	173	483	7,421	9,774	153
1922	8,513	9,687	1,230	1,108	5,642	12,107		5,573	159	43	7,900	9,717	90
1923	7,725	12,868	2,311	982	7,617	30,041		5,471	186	39	10,480	9,597	235
1924	6,011	12,989	4,527	782	4,364	18,290		5,570	157	647	13,000	10,490	183
1925	3,925	12,303	784	962	7,576	10,332		5,785	128	99	14,668	10,660	104
1926	5,377	12,681	549	583	8,776	39,946		5,387	96	107	14,872	10,707	103
1927	4,575	11,011	1,467	581	6,818	8,303		5,406	138	282	15,713	9,318	107
1928	3,724	10,486	1,335	390	9,700	27,039		5,885	276	77	15,323	8,592	100
1929	4,618	14,245	2,410	310	9,340	18,040		6,248	1,864	180	16,606	9,661	333
1930	3,205	11,174	2,375	504	7,937	28,129		5,128	901	208	16,538	8,554	163
1931	1,831	13,023	915	424	11,448	6,212		6,132	293	1,137	14,662	7,843	170
1932	1,188	15,255	222	513	13,091	42,129		7,103	129	112	11,969	6,963	140
1933	1,152	16,419	46	453	11,720	21,654		6,624	86	93	7,691	6,447	85
1934	614	19,238	49	486	11,255	6,528		5,264	53	230	6,483	6,188	132
1935	645	11,849	16	355	13,427	79,061		4,642	113	614	6,416	6,372	110
1936	661	12,650	32	287	14,287	2,453		5,157	120	152	6,401	6,460	133
1937	842	24,798	152	241	11,426	6,154		6,469	87	421	8,708	7,072	244
1938	519	18,362	274	285	14,563	79,400		6,335	69	59	14,684	7,046	341
1939	452	15,836	371	177	8,997	12,948		6,119	46	904	13,144	6,364	286
1940	264	10,366	76	120	11,757	20,206		6,063	49	1,228	9,999	7,650	218
1941	242	8,756	114	147	16,512	70,748		5,371	49	270	11,370	8,767	359
1942	243	7,503	17	74	11,602	8,56		5,720	66	162	12,461	8,753	276

TABLE 4.5 (continued)

Year	Diptheria	Streptococcal Sore Throat (including Scarlet Fever)	Smallpox	Typhoid Fever	Whooping Cough	Measles	Hepatitis, Infectious and Serum	Tuberculosis (all forms) **	Meningococcal Infections *	Poliomyelitis	Syphilis	Gonorrhea	Chancroid
1943	281	5,044	18	115	12,091	51,764		6,546	757	255	15,933	9,526	260
1944	419	8,963	10	78	4,049	26,711		6,419	857	884	17,288	11,987	185
1945	630	9,304	16	59	5,339	6,328	134	5,471	270	215	16,046	12,565	244
1946	385	5,977	3	85	8,116	42,261	34	5,548	185	1,091	18,051	12,635	206
1947	238	4,834	1	77	10,472	9,574	14	6,470	113	646	15,276	10,989	216
1948	126	5,934	-	49	2,668	42,952	9	6,109	107	775	12,100	9,448	465
1949	119	8,852	-	48	4,157	20,279	28	5,953	120	2,909	8,740	9,427	336
1950	84	4,665	-	43	9,184	38,245	48	5,538	133	2,029	8,830	8,678	202
1951	48	8,181	-	33	3,156	15,227	325	6,144	138	1,463	6,532	8,494	187
1952	45	8,325	-	53	1,992	32,941	283	6,152	169	3,912	7,377	7,691	58
1953	12	5,885	-	31	2,932	23,334	868	5,643	151	2,346	5,619	8,790	43
1954	57	5,142	-	30	5,620	40,725	1,419	5,764	150	2,168	4,686	9,940	47
1955	59	5,880	-	24	4,249	23,882	1,244	5,488	170	1,177	4,865	10,306	58
1956	220	7,349	-	56	1,907	41,966	814	5,515	182	656	4,785	9,598	52
1957	130	7,193	-	12	1,363	19,070	657	5,011	175	498	4,571	8,428	97
1958	6	5,380	-	18	1,233	41,448	688	5,587	228	1,228	4,267	8,621	178
1959	3	9,452	-	8	3,001	12,234	1,136	4,743	141	448	3,421	8,033	136
1960	9	9,287	-	14	1,129	36,161	2,113	4,127	169	88	3,647	8,372	112
1961	3	8,347	-	7	639	29,391	4,607	3,838	253	40	3,309	9,505	102
1962	4	8,116	-	12	1,756	25,303	3,280	3,474	139	21	4,331	11,654	75
1963	5	11,964	-	14	1,410	48,752	2,661	3,298	104	18	5,512	11,043	98
1964	1	17,228	-	13	957	30,897	2,472	3,047	80	3	5,220	12,028	106
1965	-	14,622	-	7	612	28,132	2,625	3,069	107	1	5,638	14,319	95
1966	1	13,862	-	7	653	15,251	2,589	3,259	135	1	5,842	15,424	114
1967	1	13,269	-	8	1,058	1,048	1,915	2,951	76	3	5,581	17,088	78
1968	-	10,101	-	1	429	353	2,356	2,618	94	3	5,351	18,153	105
1969	-	9,763	-	6	192	401	3,359	2,133	114	1	3,809	18,534	103
1970	-	11,863	-	14	195	1,834	4,594	1,992	69	2	3,920	20,359	118
1971	1	11,244	-	10	140	2,659	4,828	1,789	64	-	4,800	22,260	93
1972	1	13,304	-	7	116	2,353	4,322	1,632	55	1	4,891	24,750	175
1973	-	24,467	-	14	86	4,552	3,872	1,473	54	-	4,375	31,086	217
1974	-	31,802	-	11	104	2,365	3,599	1,431	54	2	2,722	32,067	171
1975	1	23,777	-	10	98	3,253	2,877	1,271	76	-	1,638	32,583	98
1976	-	24,937	-	10	70	6,139	2,645	1,349	65	1	1,089	34,836	37
1977	-	31,047	-	13	73	1,392	2,686	1,290	51	-	1,185	36,794	61
1978	-	29,759	-	15	47	8,006	2,174	1,260	87	1	1,133	36,647	49
1979	-	30,182	-	14	102	869	2,036	1,052	79	-	1,260	36,624	59
1980	1	24,808	-	12	38	250	1,799	1,168	77	1	1,163	34,951	50

*-Meningococcal infections - Prior to 1952 data were for meningococcic meningitis.

**-Effective January 1975, a new diagnostic classification system for tuberculosis was adopted. As a result, case counts and rates prior to 1975 are not directly comparable to the figures in 1975 and later years.

SOURCE Bureau of Disease Control and Laboratory Services, Division of Epidemiology, MDPH.

TABLE 4.6
CASE RATES OF CERTAIN REPORTED COMMUNICABLE DISEASES
MICHIGAN RESIDENTS, 1900-1980
(Rates per 100,000 population)

Year	Diptheria	Streptococcal Sore Throat (including Scarlet Fever)	Smallpox	Typhoid Fever	Whooping Cough	Measles	Infectious Hepatitis & Serum	Tuberculosis (all forms)[a]	Meningococcal Infections[b]	Poliomyelitis	Syphilis	Gonorrhea	Chancroid
1900	111.8	278.2	28.7	211.6	139.4	840.8		112.4	27.0				
1901	101.5	314.1	206.8	122.0	120.1	188.2		118.5	20.6				
1902	119.8	263.4	283.6	98.3	141.4	479.3		106.4	21.1				
1903	144.6	210.9	249.9	111.9	164.4	352.3		108.2	20.7				
1904	136.2	158.7	223.3	117.5	69.0	403.1		113.6	17.4				
1905	82.5	87.4	114.1	106.1	45.7	231.7		99.0	22.1				
1906	137.4	115.5	46.7	119.2	51.4	278.9		99.9	20.1				
1907	109.0	93.3	63.6	72.5	32.4	450.7		100.2	21.3				
1908	97.3	113.0	84.4	97.2	45.7	174.8		99.0	17.8				
1909	112.2	185.9	55.3	97.2	38.0	326.5		123.5	16.5				
1910	122.2	231.3	118.1	119.6	40.4	495.8		157.1	18.6	3.7			
1911	129.9	178.8	31.0	91.8	65.5	332.8		181.4	16.5	2.3			
1912	110.5	152.0	37.8	95.5	42.1	95.0		65.7	3.0	2.6			
1913	179.5	135.0	65.0	73.4	30.3	299.4		62.6	5.4	1.8			
1914	163.3	119.5	48.4	68.7	57.8	360.1		81.4	6.5	1.6			
1915	135.4	105.0	33.8	60.4	69.7	137.0		112.6	3.3	2.9			
1916	169.2	208.5	47.5	75.6	55.2	365.2		212.8	4.9	18.0			
1917	249.2	419.9	107.7	50.5	94.1	424.3		142.4	2.2	2.7			
1918	175.2	170.0	149.9	38.3	73.3	192.4		104.5	2.7	3.5			
1919	220.4	175.0	66.5	35.0	51.1	248.0		118.1	2.1	4.3	141.7	220.8	5.2
1920	282.4	280.2	131.3	38.7	195.5	609.6		136.1	5.5	1.8	221.3	312.5	7.1
1921	318.9	287.7	119.2	48.5	176.9	80.4		150.8	4.6	12.8	196.0	258.[illegible]	4.0
1922	218.1	248.2	31.5	28.4	144.5	310.2		142.8	4.1	1.1	202.4	248.9	2.3
1923	192.1	320.1	57.5	24.4	189.5	747.2		136.1	4.6	1.0	260.7	238.7	5.8
1924	145.3	313.9	109.4	18.9	105.5	442.0		134.6	3.8	15.6	314.2	253.5	4.4
1925	92.2	289.1	18.4	22.6	178.0	242.8		135.9	3.0	2.3	344.7	250.5	2.4
1926	123.0	290.0	12.6	13.3	200.7	913.5		123.2	2.2	2.4	340.1	244.9	2.4
1927	101.9	245.2	32.7	12.9	151.8	184.9		120.4	3.1	6.3	349.9	207.5	2.4
1928	80.8	227.6	29.0	8.5	210.5	586.9		127.7	6.0	1.7	332.6	186.5	2.2
1929	97.7	301.5	51.0	6.6	197.7	381.8		132.2	39.4	3.8	351.4	204.5	7.0
1930	66.2	230.8	49.0	10.4	163.9	580.9		105.9	18.6	4.3	341.5	176.6	3.4
1931	37.5	266.7	18.7	8.7	234.4	127.2		125.6	6.0	23.3	300.2	160.6	3.5
1932	24.1	309.7	4.5	10.4	265.8	855.4		144.2	2.6	2.3	243.0	141.4	2.8
1933	23.2	330.6	0.9	9.1	236.0	436.0		133.4	1.7	1.9	154.9	129.8	1.7
1934	12.3	384.2	1.0	9.7	224.8	130.4		105.1	1.1	4.6	129.5	123.6	2.6
1935	12.8	234.7	0.3	7.0	265.9	1,565.8		91.9	2.2	12.2	127.1	126.2	2.2
1936	13.0	248.5	0.6	5.6	280.7	48.2		101.3	2.4	3.0	125.7	126.9	2.6
1937	16.4	483.2	3.0	4.7	222.6	119.9		126.1	1.7	8.2	169.7	137.8	4.8
1938	12.0	354.9	5.3	5.5	281.5	1,534.8		122.5	1.3	1.1	283.8	136.2	6.6
1939	8.7	303.7	7.1	3.4	172.5	248.3		117.3	0.9	17.3	252.0	122.0	5.5
1940	5.0	197.2	1.4	2.3	223.7	38[illegible].4		115.3	0.9	23.4	190.2	145.5	4.1
1941	4.5	161.0	2.1	2.7	303.7	1,3[illegible]		98.8	0.9	5.0	209.1	161.2	6.[illegible]

TABLE 4.6 (continued)

Year	Diptheria	Streptococcal Sore Throat (including Scarlet Fever)	Smallpox	Typhoid Fever	Whooping Cough	Measles	Infectious Hepatitis & Serum	Tuberculosis (all forms)[2]	Meningococcal Infections[1]	Poliomyelitis	Syphilis	Gonorrhea	Chancroid
1942	4.4	135.5	0.3	1.3	209.5	154.7		103.3	1.2	2.9	225.0	158.0	5.0
1943	5.2	93.8	0.3	2.1	224.8	962.6		121.7	14.1	4.7	296.3	177.1	4.8
1944	7.8	166.7	0.2	1.5	75.3	496.7		119.4	15.9	16.4	321.5	222.9	3.4
1945	11.6	171.2	0.3	1.1	98.2	116.4	2.5	100.7	5.0	4.0	295.2	231.2	4.5
1946	6.7	104.7	0.1	1.5	142.2	740.3	0.6	97.2	3.2	19.1	316.2	221.3	3.5
1947	3.9	79.6	0.0	1.3	172.5	157.8	0.2	106.6	1.9	10.6	251.7	181.1	3.6
1948	2.0	95.8	-	0.8	43.1	693.3	0.1	98.6	1.7	12.5	195.3	152.5	7.5
1949	1.9	139.4	-	0.8	65.4	319.3	0.4	93.7	1.9	45.8	137.6	148.4	5.3
1950	1.3	73.2	-	0.7	144.1	600.2	0.8	86.9	2.1	31.8	138.6	136.2	3.2
1951	0.7	125.0	-	0.5	48.2	232.7	5.0	93.9	2.1	22.4	99.8	129.8	2.9
1952	0.7	124.1	-	0.8	29.7	491.1	4.2	91.7	2.5	58.3	110.0	114.7	0.9
1953	0.2	85.9	-	0.5	42.8	340.5	12.7	82.4	2.2	34.2	82.0	128.3	0.6
1954	0.8	73.2	-	0.4	80.0	579.8	20.2	82.1	2.1	30.9	66.7	141.5	0.7
1955	0.8	81.3	-	0.3	58.7	330.0	17.2	75.8	2.3	16.3	67.2	142.4	0.8
1956	2.9	97.8	-	0.7	25.4	558.4	10.8	73.4	2.4	8.7	63.7	127.7	0.7
1957	1.7	92.2	-	0.2	17.5	244.4	8.4	64.2	2.2	6.4	58.6	108.0	1.2
1958	0.1	68.4	-	0.2	15.7	526.9	8.7	71.0	2.9	15.6	54.2	109.6	2.3
1959	0.0	118.7	-	0.1	37.7	153.7	14.3	59.6	1.8	5.6	43.0	100.3	1.7
1960	0.1	118.7	-	0.2	14.4	462.2	27.0	52.8	2.2	1.1	46.6	107.0	1.4
1961	0.0	105.6	-	0.1	8.1	371.9	58.3	48.6	3.2	0.5	41.9	120.3	1.3
1962	0.1	102.2	-	0.2	22.1	318.7	41.3	43.8	1.8	0.3	54.6	146.8	0.9
1963	0.1	149.0	-	0.2	17.6	607.1	33.1	41.1	1.3	0.2	68.6	137.5	1.2
1964	0.0	212.7	-	0.2	11.8	381.4	30.5	37.6	1.0	0.0	64.4	148.5	1.3
1965	-	178.3	-	0.1	7.5	343.1	32.0	37.4	1.3	0.0	68.8	174.6	1.2
1966	0.0	166.7	-	0.1	7.9	183.4	31.1	39.2	1.6	0.0	70.3	185.5	1.4
1967	0.0	154.0	-	0.1	12.3	12.2	22.2	34.2	0.9	0.0	64.8	198.4	0.9
1968	-	116.4	-	0.0	4.9	4.1	27.2	30.2	1.1	0.0	61.7	209.3	1.2
1969	-	111.8	-	C.1	2.2	4.6	38.5	24.4	1.3	0.0	43.6	212.2	1.2
1970	-	133.7	-	0.2	2.2	20.7	51.8	22.4	0.8	0.0	44.2	229.4	1.3
1971	0.0	125.3	-	0.1	1.6	29.6	53.8	19.9	0.7	-	53.5	248.1	1.0
1972	0.0	147.4	-	0.1	1.3	26.1	47.9	18.1	0.6	0.0	54.2	274.2	1.9
1973	-	269.7	-	0.2	0.9	50.2	42.7	16.2	0.6	-	48.2	342.7	2.4
1974	-	349.1	-	0.1	1.1	26.0	39.5	15.7	0.6	0.0	29.9	352.0	1.9
1975	0.0	261.1	-	0.1	1.1	35.7	31.6	14.0	0.8	-	18.0	357.7	1.1
1976	-	273.5	-	0.1	0.8	67.3	29.0	14.8	0.7	0.0	11.9	382.1	0.4
1977	-	339.1	-	0.1	0.8	15.2	29.3	14.1	0.6	-	12.9	401.8	0.7
1978	-	323.4	-	0.2	0.5	87.0	23.6	13.7	0.9	0.0	12.3	398.3	0.5
1979	-	326.3	-	0.2	1.1	9.4	22.0	11.4	0.9	-	13.6	396.0	0.6
1980	0.0	267.8	-	0.1	0.4	2.7	19.4	12.6	0.8	0.0	12.6	377.4	0.5

[1]-Meningococcal infections - Prior to 1952 data were for meningococcic meningitis.

[2]-Effective January, 1975, a new diagnostic classification system for tuberculosis was adopted. As a result, case counts and rates prior to 1975 are not directly comparable to the figures in 1975 and later years.

SOURCE: Bureau of Disease Control and Laboratory Services, Division of Epidemiology, MDPH.

TABLE 4.7
NUMBER OF DEATHS AND DEATH RATES FOR CERTAIN COMMUNICABLE DISEASES
MICHIGAN RESIDENTS, 1900-1980

(Rates per 100,000 population)

Year	Diptheria		Strep. Sore Throat Incl. Scarlet Fever		Smallpox		Typhoid Fever		Whooping Cough		Measles		TB of the Respiratory System		Tuberculosis[2] (all forms)		Polio-myelitis		Syphilis		Gonorrhea	
	No.	Rate	No.	Rate	No.	Rate	No.	Rate	No.	Rate	No.	Rate	No.	Rate	No.	Rate	No.	Rate	No.	Rate	No.	Rate
1900	529	21.9	272	11.2	9	0.4	869	35.9	208	8.6	342	14.1	2,018	83.4	2,500	103.3						
1901	502	20.4	312	12.7	27	1.1	645	26.2	163	6.6	79	3.2	2,152	87.5	2,548	103.6			88	3.6		
1902	504	20.2	277	11.1	42	1.7	608	24.3	289	11.6	238	9.5	2,088	83.6	2,462	98.5			114	4.6		
1903	686	27.0	200	7.9	29	1.1	606	23.9	383	15.1	176	6.9	2,155	84.9	2,562	101.0			130	5.2		
1904	515	20.0	210	8.1	26	1.0	641	24.9	148	5.7	194	7.5	2,306	89.5	2,761	107.2			101	4.0		
1905	478	18.3	123	4.7	74	2.8	636	24.3	131	5.0	123	4.7	2,288	87.5	2,732	104.5			89	3.5		
1906	472	17.8	227	8.6	3	0.1	721	27.2	469	17.7	251	9.5	2,303	86.8	2,737	103.1			89	3.4		
1907	421	15.6	159	5.9	8	0.3	594	22.1	223	8.3	256	9.5	2,338	86.8	2,728	101.3			94	3.6		
1908	343	12.6	194	7.1	11	0.4	687	25.1	305	11.2	121	4.4	2,249	82.3	2,706	99.0			118	4.5		
1909	395	14.3	275	9.9	4	0.1	653	23.6	217	7.8	270	9.7	2,237	80.7	2,629	94.9			127	4.8		
1910	495	17.6	297	10.6	121	4.3	654	23.3	318	11.3	251	8.9	2,273	80.9	2,756	98.1	52	1.9	65	2.3		
1911	473	16.3	208	7.2	7	0.2	551	19.0	254	8.8	200	6.9	2,284	78.9	2,766	95.5	55	1.9	104	3.6		
1912	465	15.6	186	6.2	3	0.1	534	17.9	252	8.5	118	4.0	2,289	76.8	2,744	92.0	48	1.7	90	3.1		
1913	676	22.0	283	9.2	5	0.2	538	17.5	292	9.5	258	8.4	2,243	73.1	2,703	88.1	43	1.5	136	4.6		
1914	507	16.1	177	5.6	2	0.1	400	12.7	304	9.6	180	5.7	2,325	73.7	2,799	88.8	41	1.4	160	5.3		
1915	354	10.9	107	3.3	5	0.2	353	10.9	236	7.3	101	3.1	2,527	78.0	2,986	92.2	36	1.2	163	5.3		
1916	507	15.2	177	5.3	2	0.1	424	12.8	228	6.9	363	10.9	2,573	77.4	3,070	92.3	141	4.6	206	6.7		
1917	851	24.9	340	10.0	9	0.3	386	11.3	360	10.6	259	7.6	2,779	81.5	3,310	97.0	44	1.4	224	7.1		
1918	686	19.6	181	5.2	18	0.5	337	9.6	496	14.2	270	7.7	3,059	87.5	3,612	103.3	58	1.8	290	9.1		
1919	764	21.3	179	5.0	10	0.3	272	7.6	172	4.8	183	5.1	2,620	73.1	3,127	87.3	80	2.2	299	8.2		
1920	888	24.2	305	8.3	14	0.4	297	8.1	511	13.9	436	11.9	2,645	72.1	3,149	85.8	30	0.8	314	8.4		
1921	954	25.2	334	8.8	12	0.3	285	7.5	316	8.3	58	1.5	2,285	60.4	2,736	72.3	100	2.6	226	5.9	14	0.4
1922	620	15.9	217	5.6	20	0.5	192	4.9	232	5.9	232	5.9	2,232	57.2	2,654	68.0	21	0.5	186	4.7	6	0.2
1923	675	16.8	304	7.6	13	0.3	202	5.0	323	8.0	258	6.4	2,410	59.9	2,837	70.6	18	0.5	262	6.8	5	0.1
1924	470	11.4	265	6.4	226	5.5	149	3.6	169	4.1	221	5.3	2,474	59.8	2,952	71.3	116	3.0	271	7.0	13	0.3
1925	358	8.4	208	4.9	22	0.5	157	3.7	260	6.1	69	1.6	2,410	56.6	2,830	66.5	31	0.7	282	6.6	27	0.6
1926	677	15.5	235	5.4	4	0.1	119	2.7	355	8.1	577	13.2	2,601	59.5	3,041	69.5	34	0.8	327	7.5	12	0.3
1927	516	11.5	168	3.7	-	-	94	2.1	201	4.5	67	1.5	2,514	56.0	2,952	65.7	69	1.5	305	6.8	16	0.4
1928	384	8.3	178	3.9	2	0.0	83	1.8	219	4.8	303	6.6	2,647	57.4	3,108	67.5	27	0.6	384	8.4	19	0.4
1929	498	10.5	145	3.1	9	0.2	81	1.7	255	5.4	146	3.1	2,685	56.8	3,140	66.5	50	1.1	397	8.4	19	0.4
1930	299	6.2	130	2.7	9	0.2	87	1.8	176	3.6	231	4.8	2,443	50.5	2,912	60.1	39	0.8	395	8.2	12	0.2
1931	172	3.5	122	2.5	4	0.1	73	1.5	190	3.9	28	0.6	2,263	46.3	2,660	54.5	108	2.2	361	7.4	3	0.1
1932	106	2.2	112	2.3	1	0.0	56	1.1	199	4.0	183	3.7	2,101	42.7	2,463	50.0	23	0.5	377	7.7	2	0.0
1933	112	2.3	157	3.2	-	-	50	1.0	153	3.1	111	2.2	1,996	40.2	2,348	47.3	5	0.1	327	6.6	7	0.1
1934	38	0.8	171	3.4	-	-	65	1.3	141	2.8	36	0.7	1,909	38.1	2,199	43.9	25	0.5	402	8.0	10	0.2
1935	58	1.1	98	1.9	-	-	34	0.7	132	2.6	184	3.6	1,741	34.5	2,044	40.5	32	0.6	393	7.8	3	0.1
1936	52	1.0	114	2.2	-	-	37	0.7	107	2.1	12	0.2	1,816	35.7	2,100	41.3	21	0.4	394	7.7	6	0.1
1937	72	1.4	148	2.9	1	0.0	29	0.6	132	2.6	11	0.2	1,860	36.2	2,119	41.3	51	1.0	401	7.8	8	0.2
1938	44	0.9	87	1.7	-	-	23	0.4	116	2.2	100	1.9	1,633	31.6	1,866	36.1	10	0.2	401	7.8	8	0.2
1939	25	0.5	69	1.3	-	-	25	0.5	76	1.5	29	0.6	1,651	31.7	1,881	36.1	40	0.8	389	7.5	4	0.1
1940	20	0.4	41	0.8	1	0.0	11	0.2	59	1.1	19	0.4	1,547	29.4	1,752	33.3	72	1.4	591	11.2	3	0.0
1941	18	0.3	32	0.6	1	0.0	14	0.3	91	1.7	[illegible]	1.2	1,532	28.2	1,723	31.7	18	0.3	537	9.9	1	[illegible]

Table 4 7 (continued)

Year	Diptheria		Strep. Sore Throat Incl. Scarlet Fever		Smallpox		Typhoid Fever		Whooping Cough		Measles		TB of the Respiratory System		Tuberculosis² (all forms)		Polio-myelitis		Syphilis¹		Gonorrhea	
	No.	Rate	No.	Rate	No.	Rate	No.	Rate	No.	Rate	No.	Rate	No.	Rate	No.	Rate	No.	Rate	No.	Rate	No.	Rate
1942	24	0.4	23	0.4	-	-	5	0.1	72	1.3	8	0.1	1,630	29.4	1,827	33.0	10	0.2	559	10.1	7	0.1
1943	21	0.4	11	0.2	-	-	9	0.2	101	1.9	89	1.7	1,588	29.5	1,802	33.5	27	0.5	579	10.8	3	0.0
1944	32	0.6	7	0.1	1	0.0	7	0.1	33	0.6	49	0.9	1,544	28.7	1,748	32.5	45	0.8	543	10.1	2	0.0
1945	46	0.8	9	0.2	-	-	3	0.1	36	0.7	10	0.2	1,591	29.3	1,758	32.3	20	0.4	527	9.7	2	0.0
1946	27	0.5	3	0.1	-	-	6	0.1	44	0.8	47	0.8	1,645	28.8	1,843	32.3	89	1.6	547	9.6	-	-
1947	23	0.4	6	0.1	-	-	5	0.1	63	1.0	5	0.1	1,483	24.4	1,643	27.1	29	0.5	502	8.3	3	0.0
1948	8	0.1	1	0.0	-	-	4	0.1	9	0.1	43	0.7	1,395	22.5	1,561	25.2	54	0.9	512	8.3	-	-
1949	11	0.2	4	0.1	-	-	1	0.0	22	0.3	33	0.5	1,254	19.7	1,400	22.0	216	3.4	455	7.2	-	-
1950	2	0.0	1	0.0	-	-	5	0.1	28	0.4	28	0.4	1,134	17.8	1,270	19.9	128	2.0	325	5.1	1	0.0
1951	6	0.1	-	-	-	-	1	0.0	21	0.3	11	0.2	1,049	16.0	1,154	17.6	67	1.0	299	4.6	1	0.0
1952	2	0.0	-	-	-	-	-	-	8	0.1	17	0.3	689	10.3	775	11.6	213	3.2	174	2.6	2	0.0
1953	2	0.0	1	0.0	-	-	-	-	11	0.2	16	0.2	536	7.8	607	8.9	108	1.6	182	2.7	1	0.0
1954	3	0.0	3	0.0	-	-	-	-	17	0.2	17	0.2	471	6.7	530	7.5	89	1.3	139	2.0	2	0.0
1955	1	0.0	1	0.0	-	-	1	0.0	8	0.1	10	0.1	435	6.0	477	6.6	32	0.4	115	1.6	1	0.0
1956	6	0.1	3	0.0	-	-	-	-	6	0.1	26	0.3	426	5.7	466	6.2	22	0.3	114	1.5	4	0.1
1957	1	0.0	-	-	-	-	-	-	6	0.1	23	0.3	403	5.2	442	5.7	15	0.2	105	1.3	4	0.1
1958	-	-	-	-	-	-	-	-	1	0.0	18	0.2	357	4.5	395	5.0	37	0.5	84	1.1	8	0.1
1959	1	0.0	2	0.0	-	-	1	0.0	5	0.1	11	0.1	335	4.2	370	4.6	17	0.2	84	1.1	4	0.1
1960	2	0.0	1	0.0	-	-	-	-	1	0.0	17	0.2	364	4.7	390	5.0	4	0.1	79	1.0	7	0.1
1961	1	0.0	1	0.0	-	-	-	-	2	0.0	13	0.2	307	3.9	332	4.2	-	-	71	0.9	7	0.1
1962	2	0.0	1	0.0	-	-	-	-	2	0.0	8	0.1	307	3.9	331	4.2	2	0.0	94	1.2	3	0.0
1963	-	-	-	-	-	-	-	-	-	-	27	0.3	276	3.4	299	3.7	1	0.0	72	0.9	1	0.0
1964	-	-	-	-	-	-	-	-	2	0.0	11	0.1	288	3.6	315	3.9	1	0.0	66	0.8	3	0.0
1965	-	-	-	-	-	-	-	-	-	-	5	0.1	261	3.2	285	3.5	-	-	65	0.8	2	0.0
1966	1	0.0	-	-	-	-	-	-	-	-	7	0.1	284	3.4	301	3.6	-	-	63	0.8	-	-
1967	-	-	-	-	-	-	-	-	-	-	3	0.0	206	2.4	226	2.6	-	-	44	0.5	1	0.0
1968	-	-	1	0.0	-	-	-	-	-	-	-	-	203	2.3	262	3.0	2	0.0	29	0.3	-	-
1969	-	-	-	-	-	-	-	-	-	-	-	-	147	1.7	201	2.3	-	-	26	0.3	1	0.0
1970	-	-	2	0.0	-	-	-	-	-	-	1	0.0	134	1.5	180	2.0	-	-	17	0.2	2	0.0
1971	-	-	4	0.0	-	-	-	-	-	-	-	-	122	1.4	173	1.9	-	-	18	0.2	-	-
1972	-	-	1	0.0	-	-	1	0.0	-	-	-	-	111	1.2	157	1.7	1	0.0	12	0.1	-	-
1973	-	-	-	-	-	-	-	-	1	0.0	2	0.0	101	1.1	138	1.5	3	0.0	12	0.1	-	-
1974	-	-	1	0.0	-	-	-	-	2	0.0	-	-	109	1.2	142	1.6	3	0.0	11	0.1	-	-
1975	-	-	-	-	-	-	-	-	1	0.0	1	0.0	81	0.9	110	1.2	5	0.1	10	0.1	1	0.0
1976	-	-	-	-	-	-	-	-	-	-	-	-	80	0.9	102	1.1	6	0.1	11	0.1	-	-
1977	-	-	1	0.0	-	-	-	-	-	-	-	-	67	0.7	97	1.1	6	0.1	3	0.0	-	-
1978	-	-	-	-	-	-	-	-	1	0.0	1	0.0	60	0.7	80	0.9	2	0.0	5	0.1	-	-
1979	-	-	-	-	-	-	-	-	-	-	-	-	47	0.5	62	0.7	2	0.0	9	0.1	-	-
1980	-	-	-	-	-	-	-	-	-	-	-	-	51	0.6	61	0.7	-	-	1	0.0	1	0.0

¹-From 1901 through 1920, syphilis includes all other venereal diseases, beginning with 1968 excludes aortic aneurysms not specified as syphilitic.

²-Effective January 1975, a new diagnostic classification system for tuberculosis was adopted. As a result, deaths and rates prior to 1975 are not directly comparable to the figures in 1975 and later years.

TABLE 4.8

NUMBER OF DEATHS AND DEATH RATES BY SPECIFIED CAUSES
MICHIGAN RESIDENTS, 1900-1980
(Rates per 100,000 population)

Year	Heart Disease		Cancer (all forms)[1]		Cerebrovascular Disease[2]		Accidents (all forms)[3]		Motor Vehicle Accidents[4]		Diabetes		Pneumonia		Chronic Liver Disease and Cirrhosis[5]		Athero-sclerosis[6]	
	No.	Rate	No.	Rate	No.	Rate	No.	Rate	No.	Rate	No.	Rate	No.	Rate	No.	Rate	No.	Rate
1900	2,836	117.1	1,460	60.3	2,136	88.2	1,740	71.9			224	9.3	2,388	98.6				
1901	3,040	123.6	1,484	60.3	2,147	87.3	1,901	77.3			264	10.7	2,901	117.9				
1902	3,302	132.1	1,483	59.3	2,097	83.9	1,796	71.9			289	11.6	2,637	105.5				
1903	3,702	145.9	1,694	66.8	2,321	91.5	2,017	79.5			265	10.4	2,607	102.7				
1904	3,981	154.5	1,728	67.1	2,431	94.3	2,035	79.0			298	11.6	2,646	102.7				
1905	3,715	142.0	1,693	64.7	2,405	91.9	2,034	77.8			267	10.2	2,417	92.4				
1906	3,933	148.2	1,736	65.4	2,554	96.2	2,126	80.1			311	11.7	2,621	98.7				
1907	4,269	158.5	1,747	64.9	2,690	99.9	2,209	82.0			352	13.1	3,018	112.0				
1908	4,202	153.8	1,921	70.3	2,630	96.3	2,036	74.5			359	13.1	2,313	84.7				
1909	4,354	157.4	1,948	70.3	2,739	98.8	1,903	68.7			374	13.5	2,265	81.7				
1910	4,581	163.0	2,105	74.9	3,091	110.0	2,158	76.8	49	1.7	398	14.2	2,785	99.1	282	10.0		
1911	4,639	160.2	2,142	7[illegible].0	2,916	100.7	2,121	73.2	44	1.5	373	12.9	2,763	95.4				
1912	5,324	178.5	2,291	76.8	2,707	90.8	2,005	67.2	75	2.5	448	15.0	2,796	93.8				
1913	4,908	160.0	2,388	77.8	2,834	92.4	2,333	76.1	132	4.3	483	15.7	3,082	100.5				
1914	5,124	162.5	2,414	76.6	2,993	94.9	2,108	66.8	120	3.8	503	16.0	2,909	92.2				
1915	5,538	171.0	2,567	79.2	3,384	104.5	2,219	68.5	190	5.9	498	15.4	3,229	99.7				
1916	5,819	175.0	2,710	81.5	3,559	107.0	2,853	85.8	257	7.7	500	15.0	3,698	111.2				
1917	6,103	178.9	2,765	81.1	3,703	108.6	2,925	85.8	335	9.8	569	16.7	4,455	130.6				
1918	6,091	174.2	2,931	83.8	3,493	99.9	2,599	74.3	279	8.0	591	16.9	7,238	207.0				
1919	5,651	157.7	2,990	83.5	3,483	97.2	2,612	72.9	328	9.2	559	15.6	4,081	113.9				
1920	6,732	183.5	3,158	86.1	3,876	105.7	2,646	72.1	397	10.8	577	15.7	5,794	157.9				
1921	6,176	163.1	3,373	89.1	3,931	103.8	2,476	65.4	403	10.6	586	15.5	2,849	75.3	261	6.9		
1922	6,897	176.7	3,481	89.2	4,041	103.5	2,475	63.4	529	13.6	650	16.7	3,728	95.5	267	6.8		
1923	7,266	180.7	3,545	88.2	4,420	109.9	2,826	70.3	677	16.8	635	15.8	4,719	117.4	251	6.2		
1924	6,985	168.8	3,824	92.4	4,241	102.5	3,090	74.7	1,001	24.2	661	16.0	3,332	80.5	256	6.2		
1925	7,540	177.2	3,858	90.7	4,623	108.6	3,278	77.0	1,103	25.9	746	17.5	3,294	77.4	319	7.5		
1926	8,281	189.4	4,087	93.5	4,663	106.6	3,557	81.3	1,221	27.9	743	17.0	4,440	101.5	326	7.5		
1927	8,780	195.5	4,264	95.0	4,378	97.5	3,634	80.9	1,389	30.9	819	18.2	3,543	78.9	340	7.6		
1928	9,786	212.4	4,381	95.1	4,718	102.4	3,704	80.4	1,429	31.0	905	19.6	4,518	98.1	373	8.1		
1929	10,185	215.6	4,571	96.7	4,694	99.3	3,913	82.8	1,552	32.8	935	19.8	4,216	89.2	361	7.6		
1930	9,947	205.4	4,572	94.4	4,533	93.6	3,805	78.6	1,572	32.5	880	18.2	3,321	68.6	329	6.8	1,047	21.6
1931	10,206	209.0	4,763	97.5	4,388	89.8	3,630	74.3	1,516	31.0	950	19.5	2,883	59.0	365	7.5	1,005	20.6
1932	11,162	226.6	4,935	100.2	4,518	91.7	3,179	64.5	1,229	25.0	1,121	22.8	3,238	65.7	386	7.8	948	19.2
1933	11,509	231.7	5,055	101.8	4,318	86.9	3,304	66.5	1,278	25.7	1,103	22.2	2,756	55.5	354	7.1	966	19.5
1934	11,824	236.1	5,370	107.2	4,485	89.6	3,774	75.4	1,511	30.2	1,100	22.0	3,466	69.2	378	7.5	914	18.3
1935	12,456	246.7	5,399	106.9	4,420	87.5	3,771	74.7	1,676	33.2	1,228	24.3	3,801	75.3	368	7.3	897	17.8
1936	13,374	262.7	5,752	113.0	4,705	92.4	5,246	103.1	1,924	37.8	1,266	24.9	4,096	80.5	446	8.8	997	19.6
1937	13,233	257.8	5,732	111.7	4,378	85.3	4,580	89.2	2,187	42.6	1,255	24.5	4,098	79.8	430	8.4	1,168	22.8
1938	13,887	268.4	6,059	117.1	4,543	87.8	3,608	69.7	1,490	28.8	1,283	24.8	2,869	55.5	424	8.2	869	16.8
1939	14,898	285.7	6,296	120.7	4,415	84.7	3,761	72.1	1,553	29.8	1,360	26.1	2,803	53.8	387	7.4	918	17.6
1940	15,480	294.5	6,513	123.9	4,690	89.2	3,961	75.4	1,743	33.2	1,408	26.8	2,478	47.1	468	8.9	941	17.9
1941	15,761	289.8	6,551	120.5	4,698	86.4	4,450	81.8	2,156	39.6	1,382	25.4	2,235	41.1	450	8.3	906	16.7
1942	16,016	289.2	6,646	120.0	4,841	87.4	3,685	[illegible]5	1,368	24.7	1,448	26.1	2,349	42.4	535	9.7	1,015	18.3

Table 4.8 (continued)

Year	Heart Disease		Cancer (all forms)[1]		Cerebrovascular Disease[2]		Accidents (all forms)[3]		Motor Vehicle Accidents[4]		Diabetes		Pneumonia		Chronic Liver Disease and Cirrhosis[5]		Athero-sclerosis[6]	
	No.	Rate	No.	Rate	No.	Rate	No.	Rate	No.	Rate	No.	Rate	No.	Rate	No.	Rate	No.	Rate
1943	17,816	331.3	7,127	132.5	5,311	98.8	3,480	64.7	1,025	19.1	1,535	28.5	2,931	54.5	518	9.6	1,092	20.3
1944	17,004	316.2	7,277	135.3	4,954	92.1	3,350	62.3	1,103	20.5	1,554	28.9	2,369	44.1	471	8.8	980	18.2
1945	17,421	320.5	7,486	137.7	5,295	97.4	3,432	63.1	1,199	22.1	1,561	28.7	1,932	35.5	535	9.8	970	17.8
1946	17,691	309.9	7,845	137.4	5,224	91.5	3,776	66.1	1,506	26.4	1,530	26.8	1,891	33.1	554	9.7	933	16.3
1947	18,412	303.4	8,188	134.9	5,426	89.4	3,848	63.4	1,499	24.7	1,618	26.7	2,089	34.4	697	11.5	1,031	17.0
1948	18,726	302.3	8,336	134.6	5,272	85.1	4,017	64.8	1,545	24.9	1,771	28.6	1,853	29.9	771	12.4	1,085	17.5
1949	19,137	301.3	8,697	136.9	5,438	85.6	3,838	60.4	1,493	23.5	1,884	29.7	1,885	29.7	730	11.5	1,135	17.9
1950	20,521	322.1	8,685	136.3	6,376	100.1	3,783	59.4	1,680	26.4	1,438	22.6	1,358	21.3	616	9.7	1,296	20.3
1951	21,118	322.6	9,187	140.4	6,579	100.5	3,916	59.8	1,806	27.6	1,374	21.0	1,619	24.7	569	8.7	1,312	20.0
1952	21,247	316.8	9,256	138.0	6,521	97.2	3,901	58.2	1,815	27.1	1,339	20.0	1,571	23.4	599	8.9	1,294	19.3
1953	22,425	327.3	9,904	144.5	7,045	102.8	4,375	63.8	2,051	29.9	1,419	20.7	1,538	22.4	715	10.4	1,270	18.5
1954	22,362	318.4	10.105	143.9	6,964	99.1	3,948	56.2	1,916	27.3	1,469	20.9	1,380	19.6	677	9.6	1,170	16.7
1955	23,440	323.9	10,297	142.3	7,362	101.7	4,213	58.2	2,129	29.4	1,415	19.6	1,538	21.3	805	11.1	1,237	17.1
1956	24,661	328.1	10,489	139.6	7,114	94.7	3,925	52.2	1,826	24.3	1,443	19.2	1,723	22.9	788	10.5	1,251	16.6
1957	25,369	325.1	10,810	138.5	7,632	97.8	3,643	46.7	1,680	21.5	1,510	19.4	2,045	26.2	861	11.0	1,248	16.0
1958	25,215	320.6	10,946	139.2	7,547	95.9	3,306	42.0	1,466	18.6	1,595	20.3	2,076	26.4	818	10.4	1,300	16.5
1959	25,323	318.1	11,113	139.6	7,700	96.7	3,666	46.1	1,587	19.9	1,715	21.5	1,810	22.7	815	10.2	1,403	17.6
1960	25,728	328.9	11,331	144.8	7,682	98.2	3,688	47.1	1,710	21.9	1,784	22.8	2,002	25.6	840	10.7	1,352	17.3
1961	25,519	322.9	11,476	145.2	7,745	98.0	3,692	46.7	1,656	21.0	1,778	22.5	1,692	21.4	858	10.9	1,448	18.3
1962	27,226	342.9	11,752	148.0	7,783	98.0	3,758	47.3	1,668	21.0	1,908	24.0	1,824	23.0	859	10.8	1,477	18.6
1963	27,483	342.3	12,078	150.4	8,168	101.7	4,033	50.2	2,005	25.0	2,049	25.5	1,995	24.8	958	11.9	1,652	20.6
1964	27,496	339.5	12,087	149.2	7,940	98.0	4,416	54.5	2,286	28.2	2,055	25.4	1,714	21.2	995	12.3	1,559	19.2
1965	28,134	343.1	12,419	151.5	7,769	94.8	4,494	54.8	2,271	27.7	2,153	26.3	1,987	24.2	1,068	13.0	1,726	21.1
1966	28,277	340.1	12,506	150.4	7,732	93.0	4,737	57.0	2,407	29.0	2,243	27.0	2,026	24.4	1,152	13.9	1,745	21.0
1967	28,757	333.8	13,030	151.2	7,846	91.1	4,519	52.4	2,265	26.3	2,182	25.3	1,973	22.9	1,240	14.4	1,730	20.1
1968	29,680	342.1	13,292	153.2	7,913	91.2	4,603	53.1	2,466	28.4	2,298	26.5	2,341	27.0	1,259	14.5	1,262	14.5
1969	29,396	336.6	13,328	152.6	7,706	88.2	4,766	54.6	2,579	29.5	2,188	25.1	2,229	25.5	1,430	16.4	1,289	14.8
1970	29,204	329.1	13,551	152.7	7,691	86.7	4,428	49.9	2,309	26.0	2,180	24.6	2,004	22.6	1,558	17.6	1,174	13.2
1971	30,095	335.4	13,594	151.5	7,826	87.2	4,426	49.3	2,274	25.3	2,103	23.4	1,981	22.1	1,657	18.5	1,187	13.2
1972	30,865	342.0	14,045	155.6	7,999	88.6	4,566	50.6	2,450	27.1	2,222	24.6	2,009	22.3	1,778	19.7	1,153	12.8
1973	29,944	330.1	14,220	156.7	7,987	88.0	4,630	51.0	2,389	26.3	2,074	22.9	1,958	21.6	1,711	18.9	1,142	12.6
1974	29,220	320.8	14,241	156.3	7,645	83.9	4,211	46.2	1,929	21.2	1,940	21.3	1,637	18.0	1,650	18.1	1,187	13.0
1975	28,298	310.7	14,445	158.6	7,262	79.7	4,002	43.9	1,841	20.2	1,819	20.0	1,690	18.6	1,574	17.3	1,119	12.3
1976	29,233	320.6	14,880	163.2	7,354	80.7	3,912	42.9	1,993	21.9	1,719	18.9	1,812	19.9	1,486	16.3	1,207	13.2
1977	28,895	315.6	15,125	165.2	6,818	74.5	3,945	43.1	1,993	21.8	1,615	17.6	1,639	17.9	1,356	14.8	1,164	12.7
1978	29,406	319.6	15,249	165.7	6,520	70.9	3,970	43.1	2,138	23.2	1,551	16.9	1,828	19.9	1,351	14.7	1,146	12.5
1979	29,296	316.7	15,409	166.6	6,067	65.6	3,839	41.5	1,967	21.3	1,449	15.7	1,454	15.7	1,367	14.8	1,173	12.7
1980	29,790	321.6	15,828	170.9	6,164	66.6	3,627	39.2	1,880	20.3	1,467	15.8	1,712	18.5	1,362	14.7	1,254	13.5

[1]-Cancer includes leukemias, aleukemias, and Hodgkin's disease beginning with 1921.

[2]-Cerebrovascular disease was called Vascular Lesions Affecting-Central Nervous System prior to 1968.

[3]-Accidents exclude injuries undetermined whether accidentally or purposely inflicted since 1968.

[4]-Motor vehicle accidents do not include collision with heavier vehicles from 1910 through 1922. Motorcycle accidents are included beginning 1923.

[5]-Chronic liver disease and cirrhosis was called cirrhosis of the liver prior to 1979.

[6]-Atherosclerosis was called General Arteriosclerosis prior to 1968 and was called Arteriosclerosis from 1968-1978.

Table 4.9
Selected Vital Statistics by County
Michigan Residents, 1980

AREA	Population	Live Births	Low Weight Live Births	Deaths	Infant Deaths	Neonatal Deaths	Perinatal Deaths	Fetal Deaths	Marriages[1]	Divorces[1]
STATE	9,262,078	145,162	9,997	74,991	1,851	1,284	2,276	1,176	86,898	45,047
Alcona	9,740	122	6	137	2	1	1	-	80	28
Alger	9,225	145	9	104	6	5	5	-	78	21
Allegan	81,555	1,366	79	626	16	9	16	11	714	262
Alpena	32,315	500	24	252	5	4	9	5	328	171
Antrim	16,194	233	12	168	2	2	4	2	166	85
Arenac	14,706	225	11	165	1	-	1	1	120	43
Baraga	8,484	133	3	109	-	-	2	2	68	37
Barry	45,781	720	40	338	11	5	12	7	415	199
Bay	119,881	1,845	94	959	16	8	23	15	1,123	523
Benzie	11,205	177	9	134	1	-	-	-	103	51
Berrien	171,276	2,829	255	1,506	34	19	41	26	1,783	879
Branch	40,188	731	46	385	8	6	7	1	464	268
Calhoun	141,557	2,236	148	1,217	29	21	35	17	1,402	866
Cass	49,499	776	37	428	6	5	11	6	396	258
Charlevoix	19,907	335	15	194	4	2	1	-	230	124
Cheboygan	20,649	356	36	183	7	6	10	5	221	89
Chippewa	29,029	461	28	315	7	6	12	7	302	121
Clare	23,822	348	24	207	6	5	7	3	240	128
Clinton	55,893	899	37	290	5	3	10	7	420	222
Crawford	9,465	184	13	97	3	2	4	2	97	71
Delta	38,947	572	20	361	7	6	8	4	388	145
Dickinson	25,341	391	11	271	2	2	4	2	278	106
Eaton	88,337	1,231	59	498	3	1	12	11	806	424
Emmet	22,992	357	22	209	4	4	5	1	311	121
Genesee	450,449	7,689	593	3,307	104	70	159	97	4,531	2,750
Gladwin	19,957	293	10	200	2	-	1	1	211	94
Gogebic	19,686	186	14	269	3	3	3	-	199	43
Gd. Traverse	54,899	942	54	442	11	8	12	5	683	352
Gratiot	40,448	599	37	427	10	5	10	6	376	133
Hillsdale	42,071	663	38	380	2	1	6	5	373	228
Houghton	37,872	503	24	437	13	11	7	1	266	110
Huron	36,459	625	29	392	7	4	6	3	339	114
Ingham	275,520	4,462	302	1,600	45	33	58	31	3,086	1,675
Ionia	51,815	906	53	416	16	12	14	3	539	281
Iosco	28,349	536	31	267	8	6	11	6	312	138
Iron	13,635	179	3	180	2	2	2	-	122	79
Isabella	54,110	725	48	289	11	5	9	3	445	181
Jackson	151,495	2,240	140	1,298	28	19	37	20	1,530	892
Kalamazoo	212,378	3,245	221	1,434	41	25	44	21	2,304	[illegible]
Kalkaska	10,952	236	11	100	6	4	6	3	131	[illegible]
Kent	444,506	8,401	510	3,487	91	63	101	52	5,277	2,395
Keweenaw	1,963	22	-	43	-	-	-	-	18	6
Lake	7,711	102	4	115	2	1	1	-	54	16
Lapeer	70,038	1,219	63	467	10	5	17	13	640	358
Leelanau	14,007	201	14	107	1	1	1	-	112	52
Lenawee	89,948	1,433	69	739	15	12	22	13	853	534
Livingston	100,289	1,462	82	[illegible]	6	4	9	7	818	514
Luce	6,659	110	7	74	2	1	2	1	68	32
Mackinac	10,178	153	7	120	2	-	-	-	107	5
Macomb	694,600	9,690	569	4,619	104	73	116	51	6,615	3,313
Manistee	23,019	284	21	243	1	-	3	3	188	123
Marquette	74,101	1,367	57	455	16	9	21	16	698	324
Mason	26,365	459	25	285	6	5	6	2	258	102
Mecosta	36,961	492	20	265	6	2	5	3	327	153
Menominee	26,201	128	5	271	3	2	2	-	294	82
Midland	73,578	1,133	59	376	15	7	13	9	739	370
Missaukee	10,009	206	10	90	3	2	6	4	102	49
Monroe	134,659	2,154	121	919	21	12	21	9	1,230	637
Montcalm	47,555	859	52	441	10	7	9	4	499	246
Montmorency	7,492	118	6	88	1	-	-	-	70	39
Muskegon	157,589	2,651	181	1,340	31	15	42	27	1,625	854
Newaygo	34,917	580	34	327	7	6	9	3	348	171
Oakland	1,011,793	14,125	877	6,962	162	118	202	100	9,741	6,202
Oceana	22,002	386	13	217	9	7	9	2	215	118
Ogemaw	16,436	249	13	186	3	2	3	2	212	67
Ontonagon	9,861	99	10	116	-	-	1	1	74	20
Osceola	18,928	316	25	168	4	2	2	-	171	-
Oscoda	6,858	123	6	84	2	2	4	2	68	19
Otsego	14,993	265	13	143	5	4	6	3	169	60
Ottawa	157,174	2,779	123	897	24	15	26	11	1,401	593
Presque Isle	14,267	247	8	136	3	2	3	2	141	56
Roscommon	16,374	230	19	232	2	2	2	-	160	43
Saginaw	228,059	3,910	284	1,714	48	37	60	28	2,097	1,016
St. Clair	138,802	2,103	116	1,180	29	20	30	10	1,317	775
St. Joseph	56,083	967	63	493	15	10	10	2	576	265
Sanilac	40,789	616	30	417	7	4	8	4	370	160
Schoolcraft	8,575	134	10	89	3	2	5	3	95	60
Shiawassee	71,140	1,247	59	498	12	7	12	7	752	346
Tuscola	56,961	935	50	440	11	8	12	7	506	197
Van Buren	66,814	1,114	87	633	11	8	16	11	642	[illegible]
Washtenaw	264,748	3,905	264	1,362	25	18	43	30	2,608	[illegible]
Wayne	2,337,891	36,530	3,330	22,716	623	456	767	371	18,353	8,989
Wexford	25,102	435	33	235	4	1	6	5	310	139
County Not Stated	-	22	2	23	2	2	18	16	-	-

[1] - By county of occurrence rather than county of residence.

Table 4.10
Selected Vital Statistics Rates by County
Michigan Residents, 1980

AREA	Live Births	Low Weight Live Births[3]	Deaths	Infant Deaths	Neonatal Deaths	Perinatal Deaths	Fetal Deaths	Marriages[1,2]	Divorces[1,2]
STATE	15.7	68.9	8.1	12.8	8.8	15.6	8.0	18.8	9.7
Alcona	12.5	49.2	14.1	16.4	8.2	8.2	-	16.4	5.7
Alger	15.7	62.1	11.3	41.4	34.5	34.5	-	16.9	4.6
Allegan	16.7	57.8	7.7	11.7	6.6	11.6	8.0	17.5	8.9
Alpena	15.5	48.0	7.8	10.0	8.0	17.8	9.9	20.3	10.8
Antrim	14.4	51.5	10.4	8.6	8.6	17.0	8.5	20.5	10.5
Arenac	15.3	48.9	11.2	4.4	-	4.4	4.4	16.3	5.8
Baraga	15.7	22.6	12.8	-	-	14.8	14.8	16.0	8.7
Barry	15.7	55.6	7.4	15.3	6.9	16.5	9.6	18.1	8.7
Bay	15.4	50.9	8.0	8.7	4.3	12.4	8.1	18.7	8.7
Benzie	15.8	50.8	12.0	5.6	-	-	-	18.4	9.1
Berrien	16.5	90.1	8.8	12.0	6.7	14.4	9.1	20.8	10.3
Branch	18.2	62.9	9.6	10.9	8.2	9.6	1.4	23.1	13.3
Calhoun	15.8	66.2	8.6	13.0	9.4	15.5	7.5	19.8	12.2
Cass	15.7	47.7	8.6	7.7	6.4	14.1	7.7	16.0	10.4
Charlevoix	16.8	44.8	9.7	11.9	6.0	3.0	-	23.1	12.5
Cheboygan	17.2	101.1	8.9	19.7	16.9	27.7	13.9	21.4	8.6
Chippewa	15.9	60.7	10.9	15.2	13.0	25.6	15.0	20.8	8.3
Clare	14.6	69.0	8.7	17.2	14.4	19.9	8.5	20.1	10.7
Clinton	16.1	41.2	5.2	5.6	3.3	11.0	7.7	15.0	7.9
Crawford	19.4	70.7	10.2	16.3	10.9	21.5	10.8	20.5	15.0
Delta	14.7	35.0	9.3	12.2	10.5	13.9	6.9	19.9	7.4
Dickinson	15.4	28.1	10.7	5.1	5.1	10.2	5.1	21.9	8.4
Eaton	13.9	47.9	5.6	2.4	0.8	9.7	8.9	18.2	9.6
Emmet	15.5	61.6	9.1	11.2	11.2	14.0	2.8	27.1	10.5
Genesee	17.1	77.1	7.3	13.5	9.1	20.4	12.5	20.1	12.2
Gladwin	14.7	34.1	10.0	6.8	-	3.4	3.4	21.1	9.4
Gogebic	9.4	75.3	13.7	16.1	16.1	16.1	-	20.2	4.4
Gd. Traverse	17.2	57.3	8.1	11.7	8.5	12.7	5.3	24.9	12.8
Gratiot	14.8	61.8	10.6	16.7	8.3	16.5	9.9	18.6	6.6
Hillsdale	15.8	57.3	9.0	3.0	1.5	9.0	7.5	17.7	10.8
Houghton	13.3	47.7	11.5	25.8	21.9	13.9	2.0	14.0	5.8
Huron	17.1	46.4	10.8	11.2	6.4	9.6	4.8	18.6	6.3
Ingham	16.2	67.7	5.8	10.1	7.4	12.9	6.9	22.4	12.2
Ionia	17.5	58.5	8.0	17.7	13.2	15.4	3.3	20.8	10.8
Iosco	18.9	57.8	9.4	14.9	11.2	20.3	11.1	22.0	9.7
Iro	13.1	16.8	13.2	11.2	11.2	11.2	-	17.9	11.6
Is	13.4	66.2	5.3	15.2	6.9	12.3	6.8	16.4	6.7
Ja	14.8	62.5	8.6	12.5	8.5	16.4	8.8	20.2	11.7
Kalamazoo	15.3	68.1	6.8	12.6	7.7	13.5	6.4	21.7	10.7
Kalkaska	21.5	46.6	9.1	25.4	16.9	25.1	12.6	23.9	13.5
Kent	18.9	60.7	7.8	10.8	7.5	11.9	6.2	23.7	10.8
Keweenaw	11.2	-	21.9	-	-	-	-	18.3	6.1
Lake	13.2	39.2	14.9	19.6	9.8	9.8	-	14.0	4.1
Lapeer	17.4	51.7	6.7	8.2	4.1	13.8	10.6	18.3	10.2
Leelanau	14.3	69.7	7.6	5.0	5.0	5.0	-	16.0	7.4
Lenawee	15.9	48.2	8.2	10.5	8.4	15.2	9.0	19.0	11.9
Livingston	14.6	56.1	5.9	4.1	2.7	6.1	4.6	16.3	10.3
Luce	16.5	63.6	11.1	18.2	9.1	18.0	9.0	20.4	9.6
Mackinac	15.0	45.8	11.8	13.1	-	-	-	21.0	1.0
Macomb	14.0	58.7	6.6	10.7	7.5	11.9	5.2	19.0	9.5
Manistee	12.3	73.9	10.6	3.5	-	10.5	10.5	16.3	10.7
Marquette	18.4	41.7	6.1	11.7	6.6	15.2	11.6	18.8	8.7
Mason	17.4	54.5	10.8	13.1	10.9	13.0	4.3	19.6	7.7
Mecosta	15.3	40.7	7.2	12.2	4.1	10.1	6.1	17.7	8.3
Menominee	4.9	39.1	10.3	23.4	15.6	15.6	-	22.4	6.3
Midland	15.4	52.1	5.1	13.2	6.2	11.4	7.9	20.1	10.1
Missaukee	20.6	48.5	9.0	14.6	9.7	28.6	19.0	20.4	9.8
Monroe	16.0	56.2	6.8	9.7	5.6	9.7	4.2	18.3	9.3
Montcalm	18.1	60.5	9.3	11.6	8.1	10.4	4.6	21.0	10.3
Montmorency	15.8	50.8	11.7	8.5	-	-	-	18.7	10.4
Muskegon	16.8	68.3	8.5	11.7	5.7	15.7	10.1	20.6	10.3
Newaygo	16.6	58.6	9.4	12.1	10.3	15.4	5.1	19.9	9.6
Oakland	14.0	62.1	6.9	11.5	8.4	14.2	7.0	19.3	12.3
Oceana	17.5	33.7	9.9	23.3	18.1	23.2	5.2	19.5	10.7
Ogemaw	15.1	52.2	11.3	12.0	8.0	12.0	8.0	25.8	8.2
Ontonagon	10.0	101.0	11.8	-	-	10.0	10.0	15.0	4.1
Osceola	16.7	79.1	8.9	12.7	6.3	6.3	-	18.1	-
Oscoda	17.9	48.8	12.2	16.3	16.3	32.0	16.0	19.8	5.5
Otsego	17.7	49.1	9.5	18.9	15.1	22.4	11.2	22.5	8.0
Ottawa	17.7	44.3	5.7	8.6	5.4	9.3	3.9	17.8	7.5
Presque Isle	17.3	32.4	9.5	12.1	8.1	12.0	8.0	19.8	7.6
Roscommon	14.0	82.6	14.2	8.7	8.7	8.7	-	19.5	5.3
Saginaw	17.1	72.6	7.5	12.3	9.5	15.2	7.1	18.4	8.9
St. Clair	15.2	55.2	8.5	13.8	9.5	14.2	4.7	19.0	11.2
St. Joseph	17.2	65.1	8.8	15.5	10.3	10.3	2.1	20.5	9.5
Sanilac	15.1	48.7	10.2	11.4	6.5	12.9	6.5	18.1	7.9
Schoolcraft	15.6	74.6	10.4	22.4	14.9	36.5	21.9	22.2	14.0
Shia	17.5	47.3	7.0	9.6	5.6	37.6	5.6	21.1	9.7
Tusc	16.4	53.5	7.7	11.8	5.6	9.6	7.4	17.8	6.9
Van B	16.7	78.1	9.5	9.9	7.2	14.2	9.8	19.2	13.1
Washtenaw	14.7	67.6	5.1	6.4	4.6	10.9	7.6	19.7	11.2
Wayne	15.6	91.2	9.7	17.1	12.5	20.8	10.1	15.7	7.7
Wexford	17.3	75.9	9.4	9.2	2.3	13.6	11.4	24.7	11.1

1 - By county of occurrence rather than county of residence.
2 - Rate of persons per population rather than events per population.
3 - Ratio per 1,000 live births.

TABLE 4.11
LIVE BIRTHS WITH SELECTED RISK FACTORS BY COUNTY OF RESIDENCE
MICHIGAN RESIDENTS, 1980

STATE AND COUNTIES	Complications Reported		Congenital Anomalies Reported		4th Birth or Higher		Mother's Education 11th Grade or Less		Inadequate Prenatal Care[1]		Mothers Under 18 Years of Age	
	NUMBER	PERCENT	NUMBER	PERCENT	NUMBER	PERCENT	NUMBER	PERCENT	NUMBER	PERCENT	NUMBER	PERCENT
STATE	36,766	25.3	1,155	0.8	13,404	9.2	30,552	21.0	10,361	7.1	7,303	5.0
Alcona	15	12.3	2	1.6	10	8.2	28	23.0	18	14.8	8	6.6
Alger	10	6.9	1	0.7	16	11.0	19	13.1	17	11.7	5	3.4
Allegan	263	19.3	7	0.5	105	7.7	322	23.6	82	6.0	77	5.6
Alpena	101	20.2	5	1.0	37	7.4	102	20.4	38	7.6	16	3.2
Antrim	27	11.6	-	-	16	6.9	47	20.2	14	6.0	14	6.0
Arenac	44	19.6	2	0.9	28	12.4	52	23.1	15	6.7	8	3.6
Baraga	38	28.6	1	0.8	18	13.5	25	18.8	14	10.5	11	8.3
Barry	368	51.1	13	1.8	60	8.3	145	20.1	33	4.6	32	4.4
Bay	387	21.0	12	0.7	162	8.8	377	20.4	72	3.9	91	4.9
Benzie	31	17.5	3	1.7	14	7.9	42	23.7	10	5.6	7	4.0
Berrien	835	29.5	23	0.8	316	11.2	831	29.4	367	13.0	212	7.5
Branch	144	19.7	2	0.3	70	9.6	178	24.4	88	12.0	46	6.3
Calhoun	675	30.2	28	1.3	165	7.4	525	23.5	205	9.2	110	4.9
Cass	262	33.8	7	0.9	66	8.5	228	29.4	110	14.2	53	6.8
Charlevoix	85	25.4	3	0.9	30	9.0	54	16.1	23	6.9	15	4.5
Cheboygan	112	31.5	6	1.7	31	8.7	88	24.7	29	8.1	20	5.6
Chippewa	46	10.0	2	0.4	31	6.7	84	18.2	45	9.8	18	3.9
Clare	83	23.9	5	1.4	34	9.8	84	24.1	42	12.1	24	6.9
Clinton	202	22.5	8	0.9	112	12.5	114	12.7	39	4.3	29	3.2
Crawford	41	22.3	1	0.5	24	13.0	54	29.3	12	6.5	10	5.4
Delta	86	15.0	1	0.2	52	9.1	95	16.6	31	5.4	30	5.2
Dickinson	46	11.8	1	0.3	35	9.0	57	14.6	19	4.9	19	4.9
Eaton	296	24.0	16	1.3	101	8.2	160	13.0	52	4.2	49	4.0
Emmet	100	28.0	3	0.8	39	10.9	48	13.4	18	5.0	19	5.3
Genesee	2,470	32.1	62	0.8	717	9.3	1,821	23.7	440	5.7	493	6.4
Gladwin	65	22.2	2	0.7	26	8.9	62	21.2	21	7.2	13	4.4
Gogebic	40	21.5	3	1.6	28	15.1	25	13.4	15	8.1	4	2.2
Gd. Traverse	90	9.6	3	0.3	75	8.0	122	13.0	24	2.5	35	3.7
Gratiot	156	26.0	3	0.5	63	10.5	95	15.9	36	6.0	25	4.2
Hillsdale	243	36.7	9	1.4	61	9.2	164	24.7	61	9.2	42	6.3
Houghton	132	26.2	13	2.6	77	15.3	62	12.3	40	8.0	17	3.4
Huron	129	20.6	3	0.5	76	12.2	87	13.9	67	10.7	23	3.7
Ingham	964	21.6	29	0.6	360	8.1	862	19.3	284	6.4	198	4.4
Ionia	182	20.1	5	0.6	86	9.5	185	20.4	79	8.7	41	4.5
Iosco	154	28.7	6	1.1	34	6.3	109	20.3	31	5.8	24	4.5
Iron	41	22.9	6	3.4	6	3.4	26	14.5	9	5.0	5	2.8
Isabella	185	25.5	4	0.6	58	8.0	102	14.1	76	10.5	23	3.2
Jackson	429	19.2	15	0.7	187	8.3	497	22.2	174	7.8	127	5.7
Kalamazoo	1,010	31.1	20	0.6	247	7.6	618	19.0	195	6.0	132	4.1
Kalkaska	23	9.7	2	0.8	23	9.7	60	25.4	15	6.4	14	5.9
Kent	1,276	15.2	45	0.5	709	8.4	1,460	17.4	341	4.1	403	4.8
Keweenaw	1	4.5	1	4.5	5	22.7	1	4.5	1	4.5	-	-
Lake	26	25.5	1	1.0	16	15.7	30	29.4	13	12.7	4	3.9
Lapeer	258	21.2	11	0.9	111	9.1	250	20.5	61	5.0	67	5.5
Leelanau	41	20.4	3	1.5	13	6.5	16	8.0	6	3.0	9	4.5
Lenawee	406	28.3	12	0.8	147	10.3	329	23.0	147	10.3	69	4.8
Livingston	395	27.0	15	1.0	134	9.2	200	13.7	86	5.9	42	2.9
Luce	31	28.2	3	2.7	18	16.4	35	31.8	10	9.1	8	7.3
Mackinac	39	25.5	2	1.3	13	8.5	37	24.2	24	15.7	14	9.2
Macomb	2,493	25.7	65	0.7	749	7.7	1,500	15.5	423	4.4	229	2.4
Manistee	45	15.8	2	0.7	22	7.7	43	15.1	18	6.3	12	4.2
Marquette	518	37.9	14	1.0	102	7.5	147	10.8	73	5.3	35	2.6
Mason	67	14.6	7	1.5	36	7.8	91	19.8	28	6.1	20	4.4
Mecosta	142	28.9	9	1.8	43	8.7	77	15.7	26	5.3	21	4.3
Menominee	29	22.7	-	-	11	8.6	30	23.4	7	5.5	9	7.0
Midland	286	25.2	21	1.9	76	6.7	196	17.3	47	4.1	43	3.8
Missaukee	44	21.4	-	-	27	13.1	50	24.3	16	7.8	15	7.3
Monroe	597	27.7	14	0.6	186	8.6	446	20.7	278	12.9	116	5.4
Montcalm	164	19.1	10	1.2	79	9.2	212	24.7	104	12.1	41	4.8
Montmorency	18	15.3	2	1.7	9	7.6	19	16.1	9	7.6	3	2.5
Muskegon	564	21.3	24	0.9	283	10.7	626	23.6	192	7.2	177	6.7
Newaygo	122	21.0	8	1.4	57	9.8	141	24.3	99	17.1	42	7.2
Oakland	3,166	22.4	97	0.7	1,034	7.3	2,139	15.1	576	4.1	441	3.1
Oceana	97	25.1	7	1.8	39	10.1	95	24.6	32	8.3	28	7.3
Ogemaw	38	15.3	2	0.8	26	10.4	63	25.3	23	9.2	11	4.4
Ontonagon	23	23.2	2	2.0	4	4.0	11	11.1	17	17.2	5	5.1
Osceola	76	24.1	6	1.9	33	10.4	78	24.7	21	6.6	19	6.0
Oscoda	13	10.6	1	0.8	11	8.9	34	27.6	14	11.4	3	2.4
Otsego	50	18.9	3	1.1	25	9.4	35	13.2	19	7.2	9	3.4
Ottawa	423	15.2	18	0.6	233	8.4	399	14.4	97	3.5	80	2.9
Presque Isle	51	20.6	2	0.8	33	13.4	38	15.4	12	4.9	12	4.9
Roscommon	53	23.0	3	1.3	24	10.4	54	23.5	19	8.3	9	3.9
Saginaw	726	18.6	19	0.5	386	9.9	918	23.5	285	7.3	255	6.5
St. Clair	619	29.4	23	1.1	177	8.4	447	21.3	158	7.5	103	4.9
St. Joseph	243	25.1	9	0.9	108	11.2	240	24.8	85	8.8	41	4.2
Sanilac	219	35.6	4	0.6	52	8.4	108	17.5	67	10.9	34	5.5
Schoolcraft	29	21.6	1	0.7	11	8.2	30	22.4	10	7.5	4	3.0
Shiawassee	316	25.3	5	0.4	128	10.3	241	19.3	59	4.7	47	3.8
Tuscola	334	35.7	11	1.2	82	8.8	217	23.2	61	6.5	50	5.3
Van Buren	338	30.3	13	1.2	125	11.2	365	32.8	116	10.4	78	7.0
Washtenaw	1,190	30.5	15	0.4	299	7.7	534	13.7	138	3.5	114	2.9
Wayne	10,489	28.7	305	0.8	3,995	10.9	9,800	26.8	3,549	9.7	2,408	6.5
Wexford	97	22.3	3	0.7	36	8.3	109	25.1	31	7.1	32	7.4
County Not Stated	4	-	-	-	1	-	5	-	3	-	2	-

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[1] Births in which the mother received no care prior to the third trimester, or had five or fewer prenatal visits.

Live Births by Age of Mother, by County,
Michigan Residents, 1980

[illegible]	Total	Fertility Rate	Age of Mother												
			<15	15	16	17	18	19	15-19	20-24	25-29	30-34	35-39	40 & Over	Age Not Stated
STATE	145,162	66.3	331	932	2,100	3,940	5,559	7,469	20,000	51,218	47,113	21,024	4,692	762	22
Alcona	122	71.8	-	1	3	4	4	8	20	52	32	15	2	1	-
Alger	145	78.9	1	-	2	2	6	12	22	52	52	11	6	1	-
Allegan	1,366	74.2	2	6	17	52	58	81	214	506	432	180	28	4	-
Alpena	500	68.7	-	-	7	9	20	42	78	200	158	49	14	1	-
Antrim	233	71.2	-	-	2	12	11	9	34	92	70	28	6	3	-
Arenac	225	75.8	-	1	3	4	8	16	32	97	64	21	8	3	-
Baraga	133	84.8	1	-	6	4	5	6	21	39	51	13	6	2	-
Barry	720	70.4	-	2	9	21	35	41	108	256	237	97	16	6	-
Bay	1,845	66.4	1	6	27	57	68	97	255	703	589	240	50	7	-
Benzie	177	73.7	-	2	1	4	4	10	21	71	57	23	5	-	-
Berrien	2,829	72.6	18	32	65	97	132	167	493	985	858	364	96	15	-
Branch	731	81.2	-	5	20	21	40	55	141	292	192	84	18	4	-
Calhoun	2,236	69.4	6	11	35	58	97	146	347	860	699	269	47	8	-
Cass	776	71.2	-	9	13	31	36	57	146	281	232	93	18	6	-
Charlevoix	335	76.3	-	1	2	12	11	13	39	121	112	55	7	1	-
Cheboygan	356	83.3	-	3	7	10	17	23	60	130	115	41	9	1	-
Chippewa	461	73.8	-	2	6	10	23	22	63	189	144	54	10	1	-
Clare	348	73.6	-	1	8	15	19	23	66	141	98	34	9	-	-
Clinton	899	67.9	-	1	9	19	23	46	98	294	307	166	31	3	-
Crawford	184	94.6	-	4	1	5	9	15	34	64	56	23	4	3	-
Delta	572	68.5	-	3	9	18	28	36	94	199	180	77	20	2	-
Dickinson	391	78.2	-	-	5	14	13	13	45	150	131	47	15	3	-
Eaton	1,231	55.8	1	2	19	27	40	66	154	413	431	188	39	5	-
Emmet	357	67.6	1	3	3	12	13	15	46	112	127	55	11	5	-
Genesee	7,689	69.7	20	62	150	261	376	436	1,285	2,993	2,260	894	200	37	-
Gladwin	293	74.3	-	3	3	7	19	16	48	118	80	33	12	2	-
Gogebic	186	54.6	-	-	1	3	5	5	14	71	62	29	9	1	-
Gd. Traverse	942	69.3	1	4	8	22	30	35	99	305	355	142	31	9	-
Gratiot	599	64.5	-	5	7	13	19	32	76	256	185	66	14	2	-
Hillsdale	663	70.9	-	3	12	27	35	37	114	261	209	52	24	3	-
Houghton	503	67.1	1	2	8	6	17	27	60	173	161	79	26	3	-
Huron	625	89.0	-	3	4	16	23	31	77	234	203	86	19	6	-
Ingham	4,462	56.4	14	23	59	102	154	191	529	1,553	1,505	708	139	14	-
Ionia	906	82.5	-	5	12	24	35	54	130	398	257	91	24	6	-
Iosco	536	90.4	-	-	9	15	20	25	69	268	148	46	4	1	-
[illegible]	179	79.5	-	1	2	2	8	7	20	71	59	26	3	-	-
[illegible]lla	725	43.1	-	6	6	11	23	41	87	289	242	87	17	3	-
[illegible]son	2,240	66.6	3	18	31	75	90	137	351	856	695	268	54	13	-
Kalamazoo	3,245	57.9	5	13	31	83	103	159	389	1,103	1,126	504	101	17	-
Kalkaska	236	101.5	1	-	3	10	10	15	38	107	60	22	7	1	-
Kent	8,401	77.3	19	44	108	232	316	423	1,123	3,008	2,888	1,108	223	32	-
Keweenaw	22	77.5	-	-	-	-	1	-	1	12	6	1	1	-	1
Lake	102	81.9	-	-	1	3	13	5	22	36	30	5	7	2	-
Lapeer	1,219	72.4	1	6	17	43	43	68	177	466	370	167	30	8	-
Leelanau	201	66.8	-	1	4	4	3	7	19	46	93	34	5	4	-
Lenawee	1,433	70.0	2	9	14	44	61	85	213	567	411	187	45	6	2
Livingston	1,462	60.3	-	5	11	26	43	49	134	448	524	280	63	13	-
Luce	110	81.4	-	-	1	7	5	5	18	40	35	13	4	-	-
Mackinac	153	74.1	-	1	3	10	8	10	32	59	44	16	2	-	-
Macomb	9,690	57.7	3	26	60	140	224	344	794	3,182	3,656	1,648	350	57	-
Manistee	284	60.3	-	1	5	6	7	9	28	107	95	42	11	1	-
Marquette	1,363	74.9	-	3	6	26	34	84	153	550	455	169	32	8	-
Mason	459	83.7	-	3	5	12	18	26	64	205	124	55	9	2	-
Mecosta	492	50.1	-	4	2	15	26	28	75	216	138	54	6	3	-
Menominee	128	23.9	-	-	2	7	6	8	23	45	40	17	2	1	-
Midland	1,133	63.6	1	5	14	23	30	41	113	381	440	162	33	3	-
Missaukee	206	99.2	-	4	3	8	12	12	39	84	51	25	5	2	-
Monroe	2,154	68.7	4	8	40	64	99	123	334	805	668	266	52	10	15
Montcalm	859	84.5	1	6	11	23	38	56	134	368	247	89	17	3	-
Montmorency	118	87.9	-	-	2	1	4	5	12	51	38	10	7	-	-
Muskegon	2,651	73.9	8	31	58	80	111	151	431	980	848	297	74	13	-
Newaygo	580	79.6	1	2	17	22	18	35	94	240	164	55	22	4	-
Oakland	14,125	58.2	13	46	118	264	348	521	1,297	4,217	5,013	2,840	628	97	-
Oceana	386	82.9	3	3	4	18	18	16	59	154	116	43	8	3	-
Ogemaw	249	75.8	1	-	6	4	16	15	41	97	79	23	7	1	-
Ontonagon	99	53.0	-	-	1	4	5	6	16	48	19	13	2	1	-
Osceola	316	79.1	1	2	6	10	9	24	51	120	100	33	9	2	-
Oscoda	123	93.7	-	1	1	1	9	10	22	60	25	10	6	-	-
Otsego	265	79.4	-	-	-	9	5	9	23	96	91	44	10	1	-
Ottawa	2,779	73.0	1	6	30	43	77	126	282	942	1,037	432	78	7	-
Presque Isle	247	90.2	2	1	4	5	11	12	33	99	77	29	5	2	-
Roscommon	230	79.3	1	-	-	8	12	15	35	82	78	30	4	-	-
Saginaw	3,910	71.8	16	35	77	127	153	215	607	1,415	1,270	477	112	13	-
St. Clair	2,103	66.8	4	13	34	52	81	122	302	807	655	257	68	8	2
St. Joseph	967	78.8	-	2	13	26	44	58	143	380	302	111	26	4	1
Sanilac	616	74.1	-	3	11	20	31	44	109	247	172	72	16	-	-
S[illegible]lcraft	134	77.3	-	-	-	4	8	12	24	55	38	12	4	1	-
[illegible]ssee	1,247	75.4	1	4	12	30	39	65	150	472	405	172	41	6	-
[illegible]a	935	71.9	1	4	16	29	41	51	141	333	306	127	23	4	-
Van Buren	1,114	76.4	4	7	26	41	71	72	217	388	320	146	33	6	-
Washtenaw	3,905	50.5	1	11	27	75	96	162	371	1,103	1,428	815	168	19	-
Wayne	36,530	67.7	166	389	696	1,457	1,654	2,040	5,936	12,661	11,057	5,226	1,274	209	1
Wexford	435	79.7	-	3	7	22	23	32	87	161	123	51	10	3	-
County Not Stated	22	-	-	-	2	-	1	1	4	10	6	1	1	-	-

TABLE 4.13
VITAL STATISTICS BY SELECTED CITIES[1]
MICHIGAN RESIDENTS, 1980

AREA	POPULATION April 1, 1980	LIVE BIRTHS BY RESIDENCE		DEATHS BY RESIDENCE		INFANT DEATHS BY RESIDENCE		FETAL DEATHS BY RESIDENCE	
		Number	Rate	Number	Rate	Number	Rate	Number	Rate
Allen Park	34,196	353	10.3	285	8.3	3	8.5	3	8.5
Ann Arbor	107,316	1,335	12.4	485	4.5	9	6.7	6	4.5
Battle Creek	35,724	764	21.4	453	12.7	17	22.3	5	6.5
Bay City	41,593	733	17.6	476	11.4	8	10.9	3	4.1
Burton	29,976	410	13.7	218	7.3	7	17.1	2	4.9
Dearborn	90,660	1,086	12.0	926	10.2	9	8.3	11	10.1
Dearborn Heights	67,706	704	10.4	571	8.4	12	17.0	4	5.7
Detroit	1,203,339	20,535	17.1	13,872	11.5	431	21.0	228	11.1
East Detroit	38,280	457	11.9	365	9.5	6	13.1	2	4.4
East Lansing	48,309	466	9.6	124	2.6	4	8.6	4	8.6
Farmington Hills	58,056	644	11.1	323	5.6	8	12.4	2	3.1
Ferndale	26,227	456	17.4	279	10.6	4	8.8	4	8.8
Flint	159,611	3,630	22.7	1,529	9.6	64	17.6	53	14.6
Garden City	35,640	486	13.6	225	6.3	6	12.3	3	6.2
Grand Rapids	181,843	3,675	20.2	1,915	10.5	47	12.8	32	8.7
Highland Park	27,909	474	17.0	333	11.9	12	25.3	2	4.2
Holland (Pt.)	26,281	474	18.0	227	8.6	7	14.8	1	2.1
Inkster	35,190	621	17.6	285	8.1	14	22.5	6	9.7
Jackson	39,739	749	18.8	510	12.8	10	13.4	7	9.3
Kalamazoo	79,722	1,427	17.9	666	8.4	24	16.8	13	[illegible]
Kentwood	30,438	469	15.4	128	4.2	2	4.3	1	2.1
Lansing (Pt.)	130,414	2,634	20.2	921	7.1	24	9.1	13	4.9
Lincoln Park	45,105	611	13.5	413	9.2	8	13.1	2	3.3
Livonia	104,814	1,116	7.9	693	4.9	10	9.0	12	10.8
Madison Heights	35,375	507	14.3	239	6.5	6	11.8	4	7.9
Midland (Pt.)	37,250	513	13.8	204	5.5	6	11.7	3	5.8
Muskegon	40,823	855	20.9	464	11.4	5	5.8	9	10.5
Oak Park	31,537	476	15.1	304	9.6	6	12.6	4	8.4
Pontiac	76,715	1,788	23.3	679	8.9	35	19.6	17	9.5
Portage	38,157	530	13.9	151	4.0	4	7.5	3	5.7
Port Huron	33,981	651	19.2	364	10.7	15	23.0	-	-
Roseville	54,311	857	15.8	396	7.3	6	7.0	6	7.0
Royal Oak	70,893	1,048	14.8	616	8.7	12	11.5	7	6.7
Saginaw	77,508	1,775	22.9	761	9.8	31	17.5	12	6.8
St. Clair Shores	76,210	823	10.8	699	9.2	9	10.9	5	6.1
Southfield	75,568	814	10.8	691	9.1	10	12.3	6	7.4
Southgate	32,058	397	12.4	196	6.1	3	7.6	3	7.6
Sterling Heights	108,999	1,613	14.8	433	4.0	17	10.5	3	1.9
Taylor	77,568	1,345	17.3	416	5.4	12	8.9	9	6.7
Troy	67,102	881	13.1	322	4.8	7	21.7	10	11.4
Warren	161,134	1,862	11.6	1,166	7.2	17	9.1	6	3.2
Westland	84,603	1,301	15.4	471	5.6	14	10.8	5	3.8
Wyandotte	34,006	587	17.3	347	10.2	5	8.5	9	15.3
Wyoming	59,616	1,039	17.4	337	5.7	9	8.7	2	1.9

[1] - 25,000 population or over.

Table 4.14
Number of Deaths by Underlying Cause and County of Residence
Michigan, 1980

AREA	All Causes	Tuberculosis All Forms	All Other Infectious and Parasitic Diseases	MALIGNANT NEOPLASMS								Diabetes Mellitus	Nutritional Deficiencies	MAJOR CARDIOVASCULAR DISEASES					
				Total	Digestive Organs and Peritoneum	Respiratory and Intrathoracic Organs	Breast	Genital Organs	Urinary Organs	Leukemia	Other			Total	Diseases of the Heart	Hypertension with or without Renal Disease	Cerebrovascular Diseases	Atherosclerosis	Other Diseases of Arteries, Arterioles, and Capillaries
STATE	74,991	61	475	15,828	4,114	4,118	1,354	1,799	692	660	3,091	1,467	93	38,247	29,790	274	6,164	1,256	765
Alcona	137	-	2	28	9	9	1	5	1	1	2	1	-	84	65	-	13	3	3
Alger	104	-	-	16	8	3	-	-	-	1	4	3	-	65	48	1	11	1	4
Allegan	626	-	3	127	35	32	12	12	6	3	27	16	-	310	253	1	40	7	9
Alpena	252	-	-	41	14	40	1	6	3	2	5	6	1	148	111	-	25	6	6
Antrim	168	-	1	36	13	6	3	3	3	-	8	4	1	86	55	-	21	6	4
Arenac	165	-	-	36	7	8	2	8	2	1	8	7	-	93	70	-	12	6	5
Baraga	109	-	1	17	5	1	1	3	2	-	5	6	-	56	43	1	10	1	1
Barry	338	-	1	60	15	10	10	10	-	2	13	11	-	172	130	-	32	7	3
Bay	959	-	6	205	41	43	17	15	3	10	76	12	-	534	417	2	73	31	11
Benzie	134	-	1	23	5	8	1	3	2	-	4	2	-	88	64	2	15	5	2
Berrien	1,306	-	11	296	76	77	25	40	12	11	55	34	5	771	580	9	138	31	13
Branch	385	-	2	72	21	19	7	7	3	1	14	14	1	197	135	2	44	14	2
Calhoun	1,217	2	5	268	58	72	17	33	9	13	66	36	1	588	449	5	102	23	9
Cass	428	3	2	95	17	28	7	14	5	4	20	4	4	205	166	1	29	6	3
Charlevoix	194	-	4	52	10	15	6	9	3	1	8	2	-	100	87	1	7	4	1
Cheboygan	183	-	1	35	9	9	1	5	4	-	7	3	-	89	70	1	14	-	4
Chippewa	315	-	2	52	15	15	4	6	1	4	7	11	-	172	137	-	29	2	4
Clare	207	-	-	41	10	14	4	1	3	3	6	5	-	117	102	1	11	1	2
Clinton	290	-	-	60	23	16	2	6	3	2	8	4	1	161	118	-	32	10	1
Crawford	97	-	-	25	7	7	5	3	-	-	3	-	1	47	36	-	9	1	1
Delta	361	-	2	72	15	23	7	11	1	-	15	18	-	179	140	-	25	6	8
Dickinson	271	-	2	61	21	15	8	4	-	3	10	4	1	154	114	1	31	4	4
Eaton	498	-	2	114	24	27	12	13	4	4	30	8	4	245	179	4	46	12	4
Emmet	209	-	-	60	16	10	4	10	2	2	16	1	-	100	71	-	28	-	1
Genesee	3,307	4	23	683	178	188	59	72	23	36	127	61	5	1,634	1,301	11	259	40	23
Gladwin	200	-	1	49	9	22	1	4	3	2	8	1	-	107	82	-	19	3	3
Gogebic	269	-	1	50	15	9	5	4	-	3	14	6	-	165	134	1	22	6	2
Gd. Traverse	442	-	2	90	26	17	10	8	6	4	19	9	2	217	148	2	39	18	10
Gratiot	427	-	3	72	14	18	4	14	-	5	17	7	-	257	175	1	69	10	2
Hillsdale	380	1	3	85	27	16	8	7	4	9	14	10	1	176	149	-	18	7	2
Houghton	437	-	4	87	33	18	2	12	4	-	18	3	1	252	203	1	34	5	9
Huron	392	-	4	86	23	18	7	13	5	4	16	10	1	210	162	3	38	5	2
Ingham	1,600	1	12	333	96	91	19	31	12	14	70	33	4	791	628	5	115	29	14
Ionia	416	-	2	84	12	20	9	10	4	2	27	7	-	211	153	4	41	10	3
Io	267	1	2	57	19	13	3	8	2	3	9	4	-	153	118	8	21	5	1
Ir	180	-	-	35	11	9	1	3	1	3	7	3	2	86	71	-	6	6	3
Isabella	289	-	1	56	11	16	6	6	4	6	7	9	-	147	109	2	31	2	3
Jackson	1,298	2	10	293	62	90	17	37	11	18	58	24	1	679	484	8	130	42	15
Kalamazoo	1,434	1	11	310	77	80	32	37	10	15	59	18	2	706	516	11	133	28	18
Kalkaska	100	-	-	16	8	2	-	-	1	2	3	3	-	52	36	1	8	6	1
Kent	3,487	3	23	776	189	186	86	85	36	39	155	59	3	1,869	1,389	9	333	90	48
Keweenaw	43	-	-	11	7	-		1	-	1	2	-	-	24	20	-	3	1	-
Lake	115	-	1	30	9	6	3	3	3	1	5	3	-	60	43	3	9	2	3
Lapeer	467	-	2	85	15	19	12	11	8	3	17	13	-	243	174	2	48	10	9
Leelanau	107	-	-	15	5	5	1	1	1	-	2	1	-	62	41	-	11	4	6
Lenawee	739	-	6	161	41	48	7	20	6	3	36	24	2	340	251	1	65	15	8
Livingston	588	1	3	114	25	37	11	13	6	4	18	11	7	314	257	2	43	8	4
Luce	74	-	-	17	4	6	1	1	1	1	3	1	1	36	30	-	4	2	-
Mackinac	120	-	1	30	6	9	-	6	2	1	6	1	-	62	45	-	10	7	-
Macomb	4,619	1	23	1,073	265	276	104	108	38	52	230	88	4	2,366	1,857	22	364	83	40
Manistee	243	-	1	50	12	9	1	8	6	1	13	-	-	143	98	1	26	16	2
Marquette	455	-	-	95	23	25	10	15	4	3	15	12	-	217	166	3	40	5	3
Mason	265	-	1	61	13	14	7	4	5	2	16	6	-	159	126	1	23	5	4
Mecosta	263	-	2	59	18	16	3	3	3	5	11	7	-	138	97	-	28	2	11
Menominee	271	-	-	59	23	12	1	8	4	1	10	10	-	146	106	1	22	13	4
Midland	376	-	4	78	24	18	7	9	2	4	14	3	-	186	135	-	36	12	3
Missaukee	90	-	-	21	4	5	3	3	1	3	2	1	-	47	33	-	11	1	2
Monroe	919	-	3	196	51	55	14	25	8	11	32	16	-	462	381	1	64	8	8
Montcalm	441	-	3	74	25	16	3	7	4	3	16	12	-	255	190	1	49	8	7
Montmorency	88	-	1	19	5	5	1	2	-	1	5	2	-	49	37	-	10	-	2
Muskegon	1,340	1	9	306	75	87	23	37	10	9	84	86	-	659	499	8	128	11	19
Newaygo	327	-	1	67	14	19	5	6	3	2	18	5	-	149	121	1	16	7	4
Oakland	6,962	8	41	1,601	397	397	157	176	75	69	330	114	5	3,534	2,854	14	507	88	71
Oceana	217	-	1	44	17	12	1	3	3	1	7	3	1	116	90	1	21	3	1
Ogemaw	186	-	-	36	12	9	3	2	3	1	6	4	-	93	63	1	19	6	4
Ontonagon	116	1	-	20	6	1	3	3	1	1	5	6	-	66	50	-	8	7	1
Osceola	168	-	-	29	11	9	1	2	1	4	1	6	1	98	75	2	13	6	2
Oscoda	84	-	-	18	8	5	-	2	-	1	2	1	-	43	30	-	8	2	3
Otsego	143	-	-	28	5	9	1	2	-	-	11	7	-	67	52	-	11	3	1
Ottawa	897	1	4	201	40	40	29	25	10	9	50	16	-	452	332	1	71	33	15
Presque Isle	136	-	-	31	9	9	4	3	-	-	6	1	-	74	67	-	7	-	-
Roscommon	232	-	4	56	13	17	8	4	4	4	6	8	1	121	91	1	19	4	6
Saginaw	1,714	1	8	357	97	86	28	38	17	12	79	37	3	871	659	10	154	38	10
St. Clair	1,180	-	6	265	79	66	17	29	11	14	49	41	1	583	437	-	111	20	15
St. Joseph	493	-	3	90	19	25	8	11	5	2	20	9	1	269	200	4	39	21	5
Sanilac	417	-	-	78	27	12	4	11	7	3	14	9	-	241	168	1	56	11	5
Schoolcraft	89	-	3	16	6	4	1	1	-	-	4	2	1	40	35	-	4	-	1
Shi	498	-	1	107	20	23	8	14	6	6	30	19	-	261	181	1	61	13	5
Tu	440	-	2	92	18	25	10	8	2	3	26	10	-	232	179	-	44	5	4
Va	633	1	4	139	42	37	12	16	8	3	21	11	2	301	238	6	37	11	9
Washtenaw	1,362	-	15	298	76	66	23	43	17	19	54	22	1	657	499	4	121	23	10
Wayne	22,716	28	169	4,606	1,232	1,287	387	536	206	168	790	405	21	11,383	9,184	84	1,688	241	186
Wexford	235	-	1	37	10	7	6	1	3	-	10	5	-	128	98	-	24	3	3
County Not Stated	23	-	-	2	2	-	-	-	-	-	-	-	-	7	7	-	-	-	-

Table 4.14
Number of Deaths by Underlying Cause and County of Residence
Michigan, 1980 (continued)

AREA	Pneumonia and Influenza	Chronic Obstructive Pulmonary Diseases and Allies	Ulcer of Stomach and Duodenum	Chronic Liver Disease and Cirrhosis	Nephritis, Nephrotic Syndrome and Nephrosis	Complications of Pregnancy, Childbirth and the Puerperium	Congenital Anomalies	Certain Conditions Originating in the Perinatal Period	Symptoms, Signs, and Ill-defined Conditions	All Other Diseases	ACCIDENTS			Suicide	Homicide Legal Intervention	All O[illegible]ternal Causes
											Total	Motor Vehicle	All Other Accidents and Adverse Affects			
STATE	1,808	2,060	250	1,362	626	16	493	1,037	484	4,890	3,627	1,880	1,747	1,061	1,011	93
Alcona	3	4	-	-	2	-	1	-	1	6	4	1	3	-	1	-
Alger	-	2	-	2	1	-	-	6	-	2	6	3	3	1	-	-
Allegan	22	25	-	7	6	-	5	7	23	36	33	20	13	4	2	-
Alpena	7	8	2	5	1	-	1	5	-	11	11	8	3	3	2	-
Antrim	5	3	2	1	2	-	-	2	2	13	8	4	6	1	-	1
Arenac	1	7	-	2	-	-	-	-	2	9	7	4	3	1	-	-
Baraga	-	4	1	1	6	-	-	-	-	8	8	6	2	1	-	-
Barry	1	9	4	-	4	-	4	4	4	29	30	15	15	5	-	-
Bay	16	37	2	11	3	-	8	4	6	54	48	28	20	11	2	-
Benzie	5	2	1	-	-	-	-	-	-	6	6	3	3	-	-	-
Berrien	42	47	5	27	14	-	8	16	13	109	77	35	42	19	11	1
Branch	13	16	-	4	1	1	3	5	-	30	17	12	5	9	-	-
Calhoun	23	40	5	19	11	-	9	16	8	100	63	37	26	10	12	1
Cass	11	14	1	5	5	-	3	2	3	31	28	11	17	8	4	-
Charlevoix	3	5	-	3	3	-	-	2	2	9	7	6	1	2	-	-
Cheboygan	8	8	2	-	1	-	-	6	-	12	14	7	7	3	1	-
Chippewa	16	11	2	7	3	-	2	8	1	18	9	3	6	2	1	-
Clare	1	6	-	5	3	-	2	3	-	13	10	5	5	1	-	-
Clinton	8	10	1	6	1	-	1	3	3	10	14	9	5	6	1	-
Crawford	3	4	1	1	-	-	-	2	-	5	6	4	2	3	-	-
Delta	9	4	1	4	3	-	2	4	2	28	23	13	10	9	1	-
Dickinson	7	7	2	6	1	-	1	1	1	10	9	3	6	4	-	-
Eaton	19	20	1	6	2	-	1	2	-	33	30	12	18	7	3	1
Emmet	2	8	-	2	2	-	1	3	1	12	12	6	6	4	1	-
Genesee	77	99	15	56	26	-	21	55	27	220	193	95	98	55	51	2
Gladwin	4	12	-	-	2	-	1	1	-	9	8	2	6	5	-	-
Gogebic	7	5	2	6	1	-	1	3	1	10	8	3	5	3	-	-
Gd. Traverse	16	14	3	4	4	-	-	7	4	32	31	20	11	7	-	-
Gratiot	16	13	3	2	7	-	1	4	2	24	13	8	5	3	-	-
Hillsdale	17	18	-	4	1	-	2	-	1	31	20	11	9	7	3	-
Houghton	14	12	2	3	2	-	3	6	1	23	22	7	15	2	-	-
Huron	9	7	2	8	3	-	-	4	2	22	17	14	3	10	-	-
Ingham	64	53	10	26	9	1	9	28	11	118	81	43	38	29	7	-
Ionia	12	15	1	2	5	-	1	11	3	25	29	16	13	6	2	-
Iosco	3	8	1	5	1	-	3	3	-	11	10	7	3	4	1	-
Iron	6	5	1	2	3	-	1	1	-	23	7	1	6	5	-	-
Isabella	8	11	-	2	1	-	1	5	3	21	19	10	9	2	3	-
Jackson	32	38	2	15	14	-	6	17	4	73	57	25	32	20	11	-
Kalamazoo	42	44	5	14	12	-	37	26	8	120	79	36	43	21	10	-
Kalkaska	2	3	1	-	1	-	2	3	1	9	6	1	5	1	-	-
Kent	76	96	11	45	16		70	51	23	183	171	91	80	35	37	-
Keweenaw	-	-	-	-	-	-	-	-	-	3	4	1	3	1	-	-
Lake	2	3	1	2	-	-	-	1	1	4	6	5	1	1	-	-
Lapeer	6	19	2	9	6	-	4	5	-	25	36	25	11	11	1	-
Leelanau	2	5	-	2	1	-	-	1	2	7	9	6	3	-	-	-
Lenawee	24	26	3	8	9	-	8	7	8	53	42	26	16	16	2	-
Livingston	16	20	2	9	4	-	3	3	5	26	40	27	13	9	1	-
Luce	2	2	-	-	1	-	1	-	1	5	4	2	2	3	-	-
Mackinac	1	6	-	2	-	-	-	-	2	5	9	3	6	1	-	-
Macomb	93	108	8	92	44	2	37	54	24	269	217	123	94	76	36	4
Manistee	4	10	1	5	1	-	-	-	-	11	14	1	13	3	-	-
Marquette	13	13	1	6	1	-	4	8	5	36	28	11	17	15	-	1
Mason	5	5	-	1	1	-	3	2	1	19	16	11	5	5	-	-
Mecosta	6	11	-	1	1	-	2	2	2	19	11	5	6	1	3	-
Menominee	1	7	-	5	3	-	2	2	1	17	10	4	6	3	3	-
Midland	19	10	2	2	8	-	5	6	3	25	20	14	6	1	1	1
Missaukee	1	2	1	1	-	-	2	1	-	3	8	6	2	-	-	-
Monroe	15	11	2	11	11	-	4	9	3	67	62	37	25	18	7	-
Montcalm	5	16	1	3	2	-	4	6	2	31	22	12	10	6	1	-
Montmorency	-	6	-	-	1	-	1	-	1	4	3	2	1	-	-	-
Muskegon	27	47	4	21	13	1	6	13	8	82	73	39	34	21	11	-
Newaygo	9	10	2	5	5	-	1	6	1	19	23	14	9	2	1	1
Oakland	148	196	22	93	52	-	47	99	37	434	339	193	146	135	51	4
Oceana	10	6	-	1	2	-	2	6	1	10	12	6	6	1	1	-
Ogemaw	8	11	2	3	2	-	1	1	1	11	10	7	3	2	1	-
Ontonagon	4	4	-	2	2	-	-	-	-	7	4	1	3	-	-	-
Osceola	6	5	-	-	-	-	-	2	1	6	7	3	4	2	5	-
Oscoda	1	6	1	3	1	-	-	2	-	4	3	1	2	-	1	-
Otsego	5	7	-	1	5	-	-	3	1	7	8	4	4	2	2	-
Ottawa	25	[illegible]	3	10	7	-	15	6	22	62	55	42	13	3	2	-
Presque Isle	3	2	-	2	-	-	3	1	-	10	8	3	5	1	-	-
Roscommon	3	7	1	1	1	-	-	2	-	16	11	8	3	4	-	-
Saginaw	42	44	3	22	12	-	13	33	6	117	97	39	58	21	27	-
St. Clair	40	31	2	13	3	2	11	17	9	73	63	36	27	15	4	1
St. Joseph	17	14	6	4	6	-	3	10	2	30	24	10	14	2	3	-
Sanilac	8	11	3	7	7	-	4	2	2	19	24	13	11	1	1	-
Schoolcraft	2	6	-	3	-	-	2	2	1	7	2	1	1	2	-	-
Shiawassee	17	12	1	4	2	-	2	6	2	31	24	14	10	6	2	[illegible]
Tuscola	7	11	3	3	6	-	1	6	2	30	30	18	12	4	1	[illegible]
Van Buren	11	21	2	7	1	1	5	5	20	43	48	29	19	4	7	[illegible]
Washtenaw	40	40	5	21	9	1	10	11	15	84	80	38	42	36	16	1
Wayne	536	510	74	657	209	7	153	374	127	1,592	852	388	484	291	648	74
Wexford	12	6	-	1	4	-	3	-	2	14	16	7	9	5	-	1
County Not Stated	1	-	-	1	-	-	1	1	-	5	2	-	2	-	3	-

Table 4.15
Reported Cases of Certain Communicable Diseases by County
Michigan Residents, 1980

A	Total	Gonorrhea	Chicken Pox	Streptococcal Sore Throat (Including Scarlet Fever)	Hepatitis (Infectious and Serum[1])	Salmonella Infections	Tuberculosis[2]	Syphilis	Mumps	Dysentery Bacillary (Shigella)	Measles	Rubella	Meningococcal Infections	Whooping Cough	All Other[3]
STATE	95,848	34,951	28,120	24,808	1,799	1,191	1,188	1,163	1,011	130	290	179	77	30	911
Alcona	82	1	73	3	2	-	2	-	-	-	-	-	-	-	1
Alger	13	1	11	-	-	-	-	-	1	-	-	-	-	-	-
Allegan	669	66	381	155	12	10	24	1	5	-	-	-	-	2	13
Alpena	120	22	44	46	3	-	2	2	-	-	-	-	-	-	1
Antrim	52	2	9	31	3	-	2	-	3	1	1	-	-	-	-
Arenac	210	5	49	148	-	2	-	1	1	-	-	-	-	3	1
Baraga	26	5	17	1	-	-	1	-	-	-	-	2	-	-	-
Barry	498	50	127	263	5	40	3	-	5	1	1	-	-	1	2
Bay	1,249	135	722	293	16	33	6	5	15	4	3	1	-	4	12
Benzie	44	5	6	17	2	4	2	1	2	3	1	-	-	-	1
Berrien	1,515	1,103	126	98	39	23	19	54	11	13	2	6	-	-	21
Branch	501	52	295	121	2	10	7	1	3	-	4	4	-	-	2
Calhoun	897	454	319	66	14	10	16	2	9	-	-	1	-	1	5
Cass	427	47	200	125	7	4	28	1	4	1	1	4	-	-	5
Charlevoix	179	9	101	57	-	2	2	3	1	2	-	-	-	-	2
Cheboygan	76	8	36	27	3	-	1	-	-	-	-	-	-	1	-
Chippewa	491	25	207	246	3	1	3	-	1	-	2	-	-	-	3
Clare	74	10	45	11	4	1	-	-	1	1	-	-	1	-	-
Clinton	296	25	217	38	2	1	2	-	4	-	-	1	-	-	6
Crawford	87	9	31	42	-	-	-	2	-	1	-	-	-	-	2
Delta	206	37	26	133	2	-	1	1	1	4	-	1	-	-	-
Dickinson	368	31	278	47	-	1	1	-	2	-	1	4	-	1	2
Eaton	1,395	57	918	361	10	22	4	1	12	-	2	4	-	2	2
Emmet	113	19	28	58	1	1	-	-	3	1	-	-	-	-	2
Genesee	4,153	2,703	591	581	80	83	20	13	21	10	9	7	4	1	30
Gladwin	17	3	9	1	1	-	3	-	-	-	-	-	-	-	-
Gogebic	74	4	25	37	-	-	3	-	2	-	1	2	-	-	-
Gd. Traverse	296	44	166	66	3	1	7	2	4	-	-	2	-	-	1
Gratiot	327	28	275	14	1	1	3	1	-	2	-	-	1	-	1
Hillsdale	285	17	146	95	1	3	5	6	2	-	1	1	2	1	5
Houghton	266	13	78	169	2	7	-	3	2	-	4	1	-	-	4
Huron	139	4	47	4	4	-	4	-	73	1	-	1	-	-	1
Ingham	5,423	1,444	1,423	2,307	88	67	43	26	-	10	1	4	2	2	6
Ionia	370	42	192	117	6	4	1	2	3	-	-	2	-	-	1
Iosco	696	11	180	490	-	-	2	2	9	-	-	-	-	1	1
Iron	101	12	26	49	1	1	6	2	-	1	1	1	-	-	1
Isabella	575	57	319	162	23	1	-	2	1	-	-	1	3	-	6
Jackson	1,271	467	603	145	14	5	6	20	8	-	2	1	-	-	-
Kalamazoo	2,172	1,159	293	537	40	15	13	7	21	13	-	-	1	2	71
Kalkaska	25	1	5	11	-	-	1	-	2	-	3	2	-	-	-
nt	11,931	2,218	1,132	8,250	102	66	52	39	6	20	2	5	9	1	29
Keweenaw	9	2	6	-	1	-	-	-	-	-	-	-	-	-	-
Lake	20	14	1	-	-	-	2	-	2	-	-	-	1	-	-
Lapeer	284	25	195	36	6	5	2	4	6	-	1	2	-	-	2
Leelanau	14	2	1	2	2	-	6	-	-	-	-	1	-	-	-
Lenawee	657	112	395	89	14	9	7	9	4	11	-	-	-	-	7
Livingston	700	45	299	321	17	4	1	1	8	1	-	2	-	-	1
Luce	41	10	21	4	1	-	-	1	4	-	-	-	-	-	-
Mackinac	100	13	62	21	-	-	-	2	-	1	-	-	1	-	-
Macomb	3,310	644	1,554	616	189	68	49	16	93	9	5	1	6	1	59
Manistee	152	8	100	18	6	1	-	2	15	-	1	1	-	-	-
Marquette	847	83	74	643	17	9	3	6	2	3	-	1	1	-	5
Mason	260	30	199	19	4	1	2	1	4	-	-	-	-	-	-
Mecosta	166	35	64	46	2	5	1	-	4	-	-	7	-	-	2
Menominee	93	24	28	35	-	1	2	-	-	-	1	-	1	-	1
Midland	720	85	532	60	22	4	-	1	2	2	1	2	-	-	9
Missaukee	173	2	134	34	1	-	1	-	-	-	-	1	-	-	-
Monroe	635	187	262	127	14	8	4	2	10	3	2	2	2	-	12
Montcalm	317	33	211	36	4	-	2	-	7	1	1	-	-	-	2
Montmorency	30	-	19	6	-	-	-	-	5	-	-	-	-	-	-
Muskegon	1,597	605	679	127	17	17	24	9	10	18	1	9	4	-	19
Newaygo	446	71	305	51	7	-	1	1	7	5	9	-	-	-	1
Oakland	9,481	7,086	1,866	2,771	350	131	88	87	127	61	31	3	11	8	107
Oceana	80	17	19	30	4	1	-	3	-	-	1	3	-	-	-
Ogemaw	19	4	4	3	5	2	-	-	-	-	-	-	-	-	1
Ontonagon	119	1	106	9	-	4	1	-	-	-	-	-	-	-	-
Osceola	229	9	200	7	2	1	3	3	2	-	-	-	-	-	2
Oscoda	25	4	-	19	-	-	1	-	1	-	-	-	-	-	-
Otsego	120	18	45	55	1	-	-	-	-	-	1	-	-	-	1
Ottawa	949	231	415	205	29	9	19	5	3	10	1	-	1	1	20
Presque Isle	95	3	40	44	1	2	-	-	3	-	-	-	-	-	2
Roscommon	92	23	30	33	3	-	-	-	3	-	-	1	-	-	-
Saginaw	2,499	1,417	663	262	34	42	30	8	5	8	3	2	1	1	23
St. Clair	1,335	232	841	139	19	10	9	2	8	3	57	5	1	-	9
St. Joseph	292	56	138	49	8	5	8	2	-	8	7	3	-	-	8
Sanilac	71	13	39	12	2	1	1	2	-	-	-	-	1	-	-
Schoolcraft	126	3	3	117	1	-	1	-	-	-	-	-	-	-	1
Shiawassee	351	62	151	116	4	9	-	1	3	-	2	-	2	1	-
Tuscola	627	72	476	38	12	2	1	3	2	1	-	5	-	-	15
Van Buren	686	67	143	371	31	18	11	6	13	5	1	6	-	1	13
Washtenaw	1,831	1,048	172	305	32	13	25	19	4	5	3	-	-	-	5
Wayne	28,255	17,156	5,720	2,260	511	376	566	767	411	109	93	20	21	8	237
ford	336	26	239	67	1	-	-	-	1	-	1	1	-	-	-
te Homes	15	-	3	-	9	1	-	-	1	1	-	-	-	-	-

[1] - 655 of these were serum hepatitis.

[2] - Effective January, 1975, a new diagnostic classification system for tuberculosis was adopted. As a result, direct comparisons of case counts and rates between 1975 and preceding years will not be possible.

[3] - Includes: Meningitis, aseptic, 160, meningitis, influenzal, 194, meningitis, excluding aseptic, 157, staphylococcal infections, 72; encephalitis, infectious, 44; malaria, 24; ring worm, 18, typhoid fever, 17; dysentery, amebic, 10; congenital rubella syndrome, 8; rocky mountain spotted fever, 3; food poisonings, 3; botulism, 2; tularemia, 2; polio, 1; diphtheria, 1, trichinosis, 1; diarrhea epidemic infants (under 1 year), 1; leprosy, 1, [illegible], 1.

Table 4.16
NUMBER OF DEATHS BY CAUSE
MICHIGAN RESIDENTS, 1980

ICD LIST NUMBER	CAUSE OF DEATH	NUMBER
	I. INFECTIOUS AND PARASITIC DISEASES (001-139)	
001	Cholera	1
003	Other salmonella infections	1
005	Other food poisoning (bacterial)	1
008	Intestinal infections due to other organisms	8
009	Ill-defined intestinal infections	4
011	Pulmonary tuberculosis	49
012	Other respiratory tuberculosis	2
013	Tuberculosis of meninges and central nervous system	1
014	TB of intestines, periton., mesenteric gland	1
015	Tuberculosis of bones and joints	1
017	Tuberculosis of other organs	1
018	Miliary tuberculosis	6
027	Other zoonotic bacterial diseases	2
031	Diseases due to other mycobacteria	2
036	Meningococcal infection	4
038	Septicaemia	314
039	Actinomycotic infections	1
040	Other bacterial diseases	5
041	Bacterial infection in conditions classified elsewhere and of unspecified site	3
046	Slow virus infection of central nervous system	9
047	Meningitis due to enterovirus	2
048	Other enterovirus diseases of central nervous system	1
049	Other non-arthropod-borne viral diseases of central nervous sytem	4
052	Chickenpox	5
053	Herpes zoster	8
054	Herpes simplex	6
070	Viral hepatitis	16
074	Specific diseases due to coxsackie virus	2
075	Infectious mononucleosis	1
078	Other diseases due to viruses and chlamydiae	2
079	Viral infection in conditions classified elsewhere and of unspecified site	10
093	Cardiovascular syphilis	1
098	Gonococcal infections	1
112	Candidiasis	13
115	Histoplasmosis	2
117	Other mycoses	7
134	Other infestation	1
135	Sarcoidosis	9
136	Other and unspecified infectious and parasitic diseases	11
137	Late effects of tuberculosis	10
138	Late effects of acute poliomyelitis	7
139	Late effects of other infectious and parasitic diseases	1
	II. NEOPLASMS (140-239)	
140	Malignant neoplasm of lip	2
141	Malignant neoplasm of tongue	66
142	Malignant neoplasm of major salivary glands	19
143	Malignant neoplasm of gum	3
144	Malignant neoplasm of floor of mouth	28
145	Malignant neoplasm of other and unspecified parts of mouth	60
146	Malignant neoplasm of oropharynx	39
147	Malignant neoplasm of nasopharynx	26
148	Malignant neoplasm of hypopharynx	23
149	Malignant neoplasm of other and ill-defined sites within the lip, oral cavity and pharynx	56
150	Malignant neoplasm of oesophagus	307
151	Malignant neoplasm of stomach	541
152	Malignant neoplasm of small intestine, including duodenum	23
153	Malignant neoplasm of colon	1,663
154	Malignant neoplasm of rectum, rectosigmoid junction and anus	341
155	Malignant neoplasm of liver and intrahepatic bile ducts	200
156	Malignant neoplasm of gallbladder and extrahepatic bile ducts	179
157	Malignant neoplasm of pancreas	747
158	Malignant neoplasm of retroperitoneum and peritoneum	23
159	Malignant neoplasm of other and ill-defined sites within the digestive organs and peritoneum	90
160	Malignant neoplasm of nasal cavities, middle ear and accessory sinuses	13
161	Malignant neoplasm of larynx	118
162	Malignant neoplasm of trachea, bronchus and lung	3,966
163	Malignant neoplasm of pleura	8
164	Malignant neoplasm of thymus, heart and mediastinum	12
165	Malignant neoplasm of other and ill-defined sites within the respiratory system and intrathoracic organs	1
170	Malignant neoplasm of the bone and articular cartilage	56
171	Malignant neoplasm of connective and other soft tissue	99
172	Malignant melanoma of skin	164
173	Other malignant neoplasm of skin	41
174	Malignant neoplasm of female breast	1,343
175	Malignant neoplasm of male breast	11
179	Malignant neoplasm of uterus, part unspecified	126
180	Malignant neoplasm of cervix uteri	157
181	Malignant neoplasm of placenta	3
182	Malignant neoplasm of body of uterus	121
183	Malignant neoplasm of ovary and other uterine adnexa	413
184	Malignant neoplasm of other and unspecified female genital organs	30
185	Malignant neoplasm of prostate	917
186	Malignant neoplasm of testis	21
187	Malignant neoplasm of penis and other male genital organs	7
188	Malignant neoplasm of bladder	392
189	Malignant neoplasm of kidney and other and unspecified urinary organs	300
190	Malignant neoplasm of eye	7
191	Malignant neoplasm of brain	351
192	Malignant neoplasm of other and unspecified parts of nervous system	9
193	Malignant neoplasm of thyroid gland	16
194	Malignant neoplasm of other endocrine glands and related structures	21
195	Malignant neoplasm of other and ill-defined sites	95
199	Malignant neoplasm without specification of site	1,039
200	Lymphosarcoma and reticulosarcoma	195
201	Hodgkin's disease	62
202	Other malignant neoplasm of lymphoid and histiocytic tissue	223
203	Multiple myeloma and immunoproliferative neoplasms	231
204	Lymphoid leukemia	323
205	Myeloid leukemia	262
206	Monocytic leukemia	12
207	Other specified leukemia	19
208	Leukemia of unspecified cell type	163
211	Benign neoplasm of other parts of digestive system	5
212	Benign neoplasm of respiratory and intrathoracic organs	3
213	Benign neoplasm of bone and articular cartilage	1
214	Lipoma	1
215	Other benign neoplasm of connective and other soft tissue	2
216	Benign neoplasm of skin	1
218	Uterine leiomyoma	1
225	Benign neoplasm of brain and other parts of nervous system	25
226	Benign neoplasm of thyroid gland	1
227	Benign neoplasm of other endocrine glands and related structures	6
228	Haemangioma and lymphangioma, any site	3
229	Benign neoplasm of other & unspecified sites	4
235	Neoplasm of uncertain behaviour of degestive and respiratory systems	7
237	Neoplasm of uncertain behaviour of endocrine glands and nervous system	5
238	Neoplasm of uncertain behaviour of other and unspecified sites and tissues	32
239	Neoplasm of unspecified nature	53
	III. ENDOCRINE, NUTRITIONAL AND METABOLIC DISEASES AND IMMUNITY DISORDERS (240-279)	
240	Simple and unspecified goitre	1
242	Thyrotoxicosis with or without goitre	6
243	Congenital hypothyroidism	2
244	Acquired hypothyroidism	20
250	Diabetes mellitus	1,467
251	Other disorders of pancreatic internal secretion	8
252	Disorders of parathyroid gland	1
253	Disorders of the pituitary gland and it's hypothalamic control	6
254	Diseases of the thymus gland	1
255	Disorders of the adrenal glands	16
259	Other endocrine disorders	3
261	Nutritional Marasmus	10
263	Other and unspecified protein-calorie malnutrition	81
268	Vitamin D deficiency	1
269	Other nutritional deficiencies	1
270	Disorders of amino-acid transport and metabolism	3
271	Disorders of carbohydrate transport and metabolism	2
272	Disorders of lipoid metabolism	12
273	Disorders of plasma protein metabolism	13
274	Gout	4
275	Disorders of mineral metabolism	6
276	Disorder of fluid electrolyte and acid-base balance	123
277	Other and unspecified disorders of metabolism	45
278	Obesity and other hyperalimentation	54
279	Disorders involving the immune mechanism	3
	IV. DISEASES OF BLOOD AND BLOOD-FORMING ORGANS (280-289)	
280	Iron deficiency anaemias	3
281	Other deficiency anaemias	13
282	Hereditary haemolytic anaemias	21

Table 4.16
NUMER OF DEATHS BY CAUSE
MICHIGAN RESIDENTS, 1980 (continued)

ICD LIST NUMBER	CAUSE OF DEATH	NUMBER
283	Acquired haemolytic anaemias	3
284	Aplastic anaemia	45
285	Other and unspecified anaemias	49
286	Coagulation defects	40
287	Purpura and other haemorrhagic conditions	30
288	Diseases of white blood cells	14
289	Other diseases of blood and blood forming organs	50
	V. MENTAL DISORDERS (290-319)	
290	Senile and presenile organic psychotic conditions	30
291	Alcoholic psychoses	19
293	Transient organic psychotic conditions	1
295	Schizophrenic psychoses	3
296	Affective psychoses	2
298	Other nonorganic psychoses	16
300	Neurotic disorders	6
303	Alcohol dependence syndrome	109
304	Drug dependence	22
305	Nondependent abuse of drugs	153
306	Physiolog. malfunction from mental factors	1
307	Special symptoms or syndromes not elsewhere classified	3
310	Specific nonpsychotic mental disorders following organic brain damage	119
311	Depressive disorder, not elsewhere classified	4
318	Other specified mental retardation	8
319	Unspecified mental retardation	10
	VI. DISEASES OF THE NERVOUS SYSTEM AND SENSE ORGANS (320-389)	
320	Bacterial meningitis	24
322	Meningitis of unspecified cause	12
323	Encephalitis, myelitis and encephalomyelitis	13
324	Intracranial and intraspinal abscess	8
325	Phlebitis and thrombophlebitis of intracranial venous sinuses	2
326	Late effects of intracranial abscess or pyogenic infection	3
330	Cerebral degenerations usually manifest in childhood	4
331	Other cerebral degenerations	87
332	Parkinson's disease	126
333	Other extrapyramidal dis., movement disorders	15
334	Spinocerebellar disease	7
335	Anterior horn cell disease	139
336	Other diseases of spinal cord	3
340	Multiple sclerosis	58
341	Other demyelinating diseases of central nervous system	8
342	Hemiplegia	14
343	Infantile cerebral palsy	28
344	Other paralytic syndromes	18
345	Epilepsy	71
348	Other conditions of brain	95
349	Other and unspecified disorders of the nervous system	5
350	Trigeminal nerve disorders	2
356	Hereditary and idiopathic peripheral neuropathy	2
357	Inflammatory and toxic neuropathy	6
358	Myoneural disorders	10
359	Muscular dystrophies and other myopathies	38
369	Blindness and low vision	1
	VII. DISEASES OF THE CIRCULATORY SYSTEM (390-459)	
390	Rheumatic fever without mention of heart involvement	1
391	Rheumatic fever with heart involvement	1
394	Diseases of mitral valve	97
395	Diseases of aortic valve	16
396	Diseases of mitral and aortic valves	41
397	Diseases of other endocardial structures	12
398	Other rheumatic heart disease	119
401	Essential hypertension	105
402	Hypertensive heart disease	692
403	Hypertensive renal disease	169
404	Hypertensive heart and renal disease	110
410	Acute myocardial infarction	12,543
411	Other acute and subacute forms of ischemic heart disease	81
412	Old myocardial infarction	60
413	Angina pectoris	14
414	Other forms of chronic ischemic heart disease	9,699
415	Acute pulmonary heart disease	366
416	Chronic pulmonary heart disease	53
417	Other diseases of pulmonary circulation	3
420	Acute pericarditis	3
421	Acute and subacute endocarditis	21
422	Acute myocarditis	14
423	Other diseases of pericardium	14
424	Other diseases of endocardium	269
425	Cardiomyopathy	281

ICD LIST NUMBER	CAUSE OF DEATH	NUMBER
426	Conduction disorders	22
427	Cardiac dysrhythmias	981
428	Heart failure	1,137
429	Ill-defined description and complications of heart disease	3,160
430	Subarachnoid haemorrhage	256
431	Intracerebral hemorrhage	655
432	Other and unspecified intracranial hemorrhage	60
433	Occlusion and stenosis of precerebral arteries	72
434	Occlusion of cerebral arteries	1,349
435	Transient cerebral ischaemia	13
436	Acute but ill-defined cerebrovascular disease	2,764
437	Other and ill-defined cerebrovascular disease	543
438	Late effects of cerebrovascular disease	243
440	Atherosclerosis	1,254
441	Aortic aneurysm	563
442	Other aneurysm	31
443	Other peripheral vascular disease	47
444	Arterial embolism and thrombosis	52
446	Polyarteritis nodosa and allied conditions	29
447	Other disorders of arteries and arterioles	[illegible]
448	Diseases of capillaries	2
451	Phlebitis and thrombophlebitis	57
452	Portal vein thrombosis	5
453	Other venous embolism and thrombosis	17
454	Varicose veins of lower extremities	5
455	Haemorrhoids	1
456	Varicose veins of other sites	17
457	Noninfective disorders of lymphatic channels	2
458	Hypotension	31
459	Other disorders of circulatory system	21
	VIII. DISEASES OF THE RESPIRATORY SYSTEM (460-519)	
464	Acute laryngitis and tracheitis	6
465	Acute upper respiratory infections of multiple or unspecified site	5
466	Acute bronchitis and bronchiolitis	13
473	Chronic sinusitis	4
475	Peritonsillar abscess	1
478	Other diseases of upper respiratory tract	9
480	Viral pneumonia	29
481	Pneumococcal pneumonia	60
482	Other bacterial pneumonia	72
483	Pneumonia due to other specified organism	5
485	Bronchopneumonia, organism unspecified	269
486	Pneumonia, organism unspecified	1,277
487	Influenza	95
490	Bronchitis, not specified as acute or chronic	9
491	Chronic bronchitis	115
492	Emphysema	574
493	Asthma	100
494	Bronchiectasis	25
496	Chronic airways obstruction, not elsewhere classified	1,234
500	Coalworkers' pneumoconiosis	6
501	Asbestosis	2
502	Pneumoconiosis due to other silica/silicates	7
505	Pneumoconiosis, unspecified	6
506	Respiratory conditions due to chemical fumes and vapors	3
507	Pneumonitis due to solids and liquids	104
510	Empyema	23
511	Pleurisy	22
512	Pneumothorax	13
513	Abscess of lung and mediastinum	33
514	Pulmonary congestion and hypostasis	44
515	Postinflammatory pulmonary fibrosis	115
516	Other alveolar and parietoalveolar pneumopathy	31
518	Other diseases of lung	123
519	Other diseases of respiratory system	28
	IX. DISEASES OF THE DIGESTIVE SYSTEM (520-579)	
526	Diseases of the jaws	1
527	Diseases of the salivary glands	1
530	Diseases of oesophagus	48
531	Gastric ulcer	81
532	Duodenal ulcer	85
533	Peptic ulcer, site unspecified	62
534	Gastrojejunal ulcer	3
535	Gastritis and duodenitis	27
536	Disorders of function of stomach	1
537	Other disorders of stomach and duodenum	15
540	Acute appendicitis	20
541	Appendicitis, unqualified	1
550	Inguinal hernia	7
551	Other hernia of abdominal cavity, with gangrene	5
552	Other hernia abdominal cavity with obstruction, without mention of gangrene	9

Table 4.16
NUMBER OF DEATHS BY CAUSE
MICHIGAN RESIDENTS, 1980 (continued)

ICD LIST NUMBER	CAUSE OF DEATH	NUMBER
553	Other hernia of abdominal cavity without mention of obstruction or gangrene	17
555	Regional enteritis	14
556	Idiopathic proctocolitis	16
557	Vascular insufficiency of intestine	175
558	Other noninfective gastroenteritis and colitis	23
560	Intestinal obstruction without mention of hernia	165
562	Diverticula of intestine	112
564	Functional digestive disorders, not elsewhere classified	1
565	Anal fissure and fistula	7
566	Abscess of anal and rectal regions	4
567	Peritonitis	44
568	Other disorders of peritoneum	4
569	Other disorders of intestine	54
570	Acute and subacute necrosis of liver	20
571	Chronic liver disease and cirrhosis	1,362
572	Liver abscess and sequelae of chronic liver disease	125
573	Other disorders of liver	35
574	Cholelithiasis	51
575	Other disorders of gallbladder	65
576	Other disorders of biliary tract	49
577	Diseases of pancreas	142
578	Gastrointestinal haemorrhage	159
579	Intestinal malabsorption	9
	X. DISEASES OF THE GENITOURINARY SYSTEM (580-629)	
580	Acute glomerulonephritis	8
581	Nephrotic syndrome	10
582	Chronic glomerulonephritis	50
583	Nephritis and nephropathy, not specified as acute or chronic	23
584	Acute renal failure	95
585	Chronic renal failure	151
586	Renal failure, unspecified	282
587	Renal sclerosis, unspecified	4
588	Disorders resulting from impaired renal function	3
590	Infections of kidney	83
591	Hydronephrosis	4
592	Calculus of kidney and ureter	12
593	Other disorders of kidney and ureter	46
595	Cystitis	10
596	Other disorders of bladder	2
597	Urethritis, not sexually transmitted, and urethral syndrome	1
598	Urethral stricture	1
599	Other disorders of urethra and urinary tract	142
600	Hyperplasia of prostate	18
601	Inflammatory diseases of prostate	6
602	Other disorders of prostate	5
603	Hydrocele	1
608	Other disorders of male genital organs	2
614	Inflammatory disease of ovary, fallopian tube, pelvic cellular tissue and peritoneum	3
620	Noninflam. disord. ovary, F.tube, broad lig.	2
623	Noninflammatory disorders of vagina	1
	XI. COMPLICATIONS OF PREGNANCY, CHILDBIRTH, AND THE PUERPERIUM (630-676)	
633	Ectopic pregnancy	1
641	Antepartum hemorrhage, abruptio placentae, and placenta praevia	3
642	Hyper. aff. preg., childbirth, puerperium	2
648	Other current conditions in the mother classifiable elsewhere but complicating pregnancy, childbirth and the puerperium	2
664	Trauma to perineum and vulva during delivery	1
669	Other complications of labour and delivery, not elsewhere classified	1
673	Obstetrical pulmonary embolism	4
674	Other and unspecified complications of the puerperium, not elsewhere classified	2
	XII. DISEASES OF THE SKIN AND SUBCUTANEOUS TISSUE (680-709)	
682	Other cellulitis and abscess	14
686	Other local infections of skin and subcutaneous tissue	9
694	Bullous dermatoses	1
695	Erythematous conditions	10
696	Psoriasis and similar disorders	1
707	Chronic ulcer of skin	71
	XIII. DISEASES OF THE MUSCULOSKELETAL SYSTEM AND CONNECTIVE TISSUE (710-739)	
710	Diffuse diseases of connective tissue	81
711	Arthropathy associated with infections	1
714	Rheumatoid arthritis and other inflammatory polyarthropathies	56
715	Osteoarthrosis and allied disorders	18
716	Other and unspecified arthropathies	7
720	Ankylosing spondylitis and other inflammatory spondylopathies	1
721	Spondylosis and allied disorders	2
722	Intervertebral disc disorders	1
729	Other disorders of soft tissues	3
730	Osteomyelitis, periostitis and other infections involving bone	10
731	Osteitis deformans and osteopathies associated with other disorders classified elsewhere	3
733	Other disorders of bone and cartilage	8
736	Other acquired deformities of limbs	1
737	Curvature of spine	11
	XIV. CONGENITAL ANOMALIES (740-759)	
740	Anencephalus and similar anomalies	23
741	Spina bifida	13
742	Other congenital anomalies of nervous system	45
744	Congenital anomalies of ear, face and neck	1
745	Bulbus cordis anomalies and anomalies of cardiac septal closure	62
746	Other congenital anomalies of heart	121
747	Other congenital anomalies of circulatory system	47
748	Congenital anomalies of respiratory system	79
749	Cleft palate and cleft lip	1
750	Other congenital anomalies of upper alimentary tract	5
751	Other congenital anomalies of digestive system	15
753	Congenital anomalies of urinary system	37
756	Other congenital musculoskeletal anomalies	25
757	Congenital anomalies of the integument	1
758	Chromosomal anomalies	23
759	Other and unspecified congenital anomalies	45
	XV. CERTAIN CONDITIONS ORIGINATING IN THE PERINATAL PERIOD (760-779)	
760	Fetus or newborn affected by maternal conditions which may be unrelated to present pregnancy	5
761	Fetus or newborn affected by maternal complications of pregnancy	72
762	Fetus or newborn affected by complications of placenta, cord and membranes	50
763	Fetus or newborn affected by other complications of labour and delivery	5
764	Slow fetal growth and fetal malnutrition	2
765	Disorders relating to short gestation and unspecified low birthweight	145
767	Birth trauma	45
768	Intrauterine hypoxia and birth asphyxia	69
769	Respiratory distress syndrome	207
770	Other respiratory conditions of fetus and newborn	204
771	Infections specific to the perinatal period	35
772	Fetal and neonatal haemorrhage	39
773	Haemolytic disease of fetus or newborn, due to isoimmunization	2
774	Other perinatal jaundice	1
775	Endocrine and metabolic disturbances specific to the fetus and newborn	1
776	Haematological disorders of fetus and newborn	8
777	Perinatal disorders of digestive system	14
778	Conditions involving the integument and temperature regulation of fetus and newborn	5
779	Other and ill-defined conditions originating in the perinatal period	124
	XVI. SYMPTOMS, SIGNS AND ILL-DEFINED CONDITIONS (780-799)	
780	General symptoms	4
782	Symptoms involving skin and other integumentary tissue	1
783	Symptoms--nutrition, metabolism, development	1
785	Symptoms involving cardiovascular system	14
786	Symptoms involving respiratory system and other chest symptoms	5
789	Other symptoms involving abdomen and pelvis	2
797	Senility without mention of psychosis	21
798	Sudden death, cause unknown	270
799	Other ill-defined and unknown causes of morbidity and mortality	165
	XVII. EXTERNAL CAUSES OF INJURY AND POISONING (E800-E999)	
E805	Hit by rolling stock	3
E806	Other specified railway accident	1
E807	Railway accident of unspecified nature	1
E810	Motor vehicle traffic accident involving collision with train	27
E812	Other motor vehicle traffic accident involving collision with another motor vehicle	780

Table 4.18
NUMBER OF DEATHS BY CAUSE
MICHIGAN RESIDENTS, 1980 (continued)

ICD LIST NUMBER	CAUSE OF DEATH	NUMBER
E813	Motor vehicle traffic accident involving collision with other vehicle	57
E814	Motor vehicle traffic accident involving collision with pedestrian	307
E815	Other motor vehicle traffic accident involving collision on the highway	238
E816	Motor vehicle traffic accident due to loss of control, without collision on the highway	302
E817	Noncollision motor vehicle traffic accident while boarding or alighting	1
E818	Other noncollision motor vehicle traffic accident	20
E819	Motor vehicle traffic accident of unspecified nature	104
E820	Nontraffic accident involving motor-driven snow vehicle	9
E821	Nontraffic accident involving other off-road motor vehicle	3
E822	Other motor vehicle nontraffic accident involving collision with moving object	18
E824	Other motor vehicle nontraffic accident while boarding and alighting	1
E825	Other motor vehicle nontraffic accident of other and unspecified nature	13
E826	Pedal cycle accident	6
E828	Accident involving animal being ridden	4
E830	Accident to watercraft causing submersion	17
E831	Accident to watercraft causing other injury	1
E832	Other accidental submersion or drowning in water transport accident	19
E838	Other and unspecified water transport accident	5
E840	Accident to powered aircraft at takeoff or landing	3
E841	Accident to powered aircraft, other and unspecified	34
E844	Other specified air transport accidents	3
E846	Accidents involving powered vehicles used solely within the buildings and premises of an industrial or commercial establishment	1
E848	Accidents involving other vehicles not elsewhere classifiable	1
E850	Accidental poisoning by analgesics, antipyretics, antirheumatics	13
E851	Accidental poisoning by barbiturates	2
E853	Accidental poisoning by tranquillizers	2
E854	Accidental poisoning by other psychotropic agents	3
E855	Accidental poisoning by other drugs acting on central and autonomic nervous systems	2
E856	Accidental poisoning by antibiotics	3
E858	Accidental poisoning by other drugs	10
E860	Accidental poisoning by alcohol, not elsewhere classified	5
E862	Accidental poisoning by petroleum products, other solvents and their vapours, not elsewhere classified	1
E864	Accid. poison. by corrosives & caustics, NEC	2
E865	Accidental poisoning from foodstuffs and poisonous plants	2
E866	Accidental poisoning by other and unspecified solid and liquid substances	1
E867	Accidental poisoning by gas distributed by pipeline	2
E868	Accidental poisoning by other utility gas and other carbon monoxide	52
E869	Accidental poisoning by other gases and vapours	8
E870	Accidental cut, puncture, perforation or haemorrhage during medical care	4
E876	Other and unspecified misadventures during medical care	1
E878	Surgical operation and other surgical procedures as the cause of abnormal reaction of patient, or of later complication, without mention of misadventure at the time of operation	42
E879	Other procedures, without mention of misadventure at the time of procedure, as the cause of abnormal reaction of patient, or of later complication	7
E880	Fall on or from stairs or steps	58
E881	Fall on or from ladders or scaffolding	16
E882	Fall from or out of building or other structure	22
E883	Fall into hole or other opening in surface	4
E884	Other fall from one level to another	18
E885	Fall on same level from slipping, tripping, or stumbling	10
E887	Fracture, cause unspecified	156
E888	Other and unspecified fall	205
E890	Conflagration in private dwelling	194
E891	Conflagration in other and unspecified building or structure	9
E892	Conflagration not in building or structure	3
E893	Accident caused by ignition of clothing	1
E894	Ignition of highly inflammable material	8
E895	Accident caused by controlled fire in private dwelling	1
E898	Accident caused by other specified fire and flames	4
E899	Accident caused by unspecified fire	3
E900	Excessive heat	6
E901	Excessive cold	34
E902	High/low air pressure, changes in air press.	1
E904	Hunger, thirst, exposure, neglect	11
E906	Other injury caused by animals	3
E907	Lightning	6
E908	Cataclysmic storms, and floods resulting from storms	5
E910	Accidental drowning and submersion	213
E911	Inhalation and ingestion of food causing obstruction of respiratory tract or suffocation	80
E912	Inhalation and ingestion of other object causing obstruction of respiratory tract or suffocation	57
E913	Accidental mechanical suffocation	37
E915	Foreign body accidentally entering other orifice	1
E916	Struck accidentally by falling object	43
E917	Striking against or struck accidentally by objects or persons	5
E918	Caught accidentally in or between objects	2
E919	Accidents caused by machinery	43
E920	Accidents caused by cutting and piercing instruments or objects	2
E921	Accidents caused by explosion of pressure vessel	3
E922	Accident caused by firearm missile	53
E923	Accident caused by explosive material	11
E924	Accident caused by hot substance or object, caustic or corrosive material and steam	9
E925	Accident caused by electric current	26
E927	Overexertion and strenuous movements	1
E928	Other and unspecified environmental and accidental causes	39
E929	Late effects of accidental injury	28
E930	Antibiotics	1
E934	Agents primarily affect. blood constituents	1
E935	Analgesics, antipyretics and antirheumatics	1
E938	Other central nervous system depressants	1
E947	Other and unspecified drugs and medicaments	5
E950	Suicide and self inflicted poisoning by solid or liquid substances	112
E952	Suicide and self-inflicted poisoning by other gases and vapours	130
E953	Suicide and self-inflicted injury by hanging, strangulation, and suffocation	170
E954	Suicide and self-inflicted injury by submersion (drowning)	22
E955	Suicide and self-inflicted injury by firearms and explosives	553
E956	Suicide and self-inflicted injury by cutting and piercing instruments	14
E957	Suicide and self-inflicted injuries by jumping from high place	23
E958	Suicide and self-inflicted injury by other and unspecified means	17
E960	Fight, brawl, rape	4
E962	Assault by poisoning	6
E963	Assault by hanging and strangulation	42
E964	Assault by submersion (drowning)	3
E965	Assault by firearms and explosives	515
E966	Assault by cutting and piercing instrument	148
E967	Child battering and other maltreatment	10
E968	Assault by other and unspecified means	116
E969	Late effects of injury purposely inflicted by other person	1
E970	Injury due to legal intervention by firearms	17
E980	Poisoning by solid or liquid substances, undetermined whether accidentally or purposely inflicted	36
E981	Poisoning by gases in domestic use, undeter.	1
E982	Poisoning by other gases, undetermined whether accidentally or purposely inflicted	11
E983	Hanging, strangulation, or suffocation undetermined whether accidentally or purposely inflicted	2
E984	Submersion (drowning) undetermined whether accidentally or purposely inflicted	11
E985	Injury by firearms and explosives undetermined whether accidentally or purposely inflicted	6
E987	Falling from high place, undetermined whether accidentally or purposely inflicted	5
E988	Injury by other and unspecified means undetermined whether accidentally or purposely inflicted	26
E989	Late effects of injury, undetermined whether accidentally or purposely inflicted	1
	TOTAL	74,991

TABLE 4.17
POPULATION BY AGE, RACE, AND SEX, MICHIGAN RESIDENTS, 1980

AGE IN YEARS	ALL RACES			WHITE			ALL OTHER		
	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE
UNDER 1	146176	74504	71672	117863	60299	57564	28313	14205	14108
1-4	538937	275654	253283	434552	223097	211455	104385	52557	51828
5-9	727120	372134	354986	579637	298026	281611	147483	74108	73375
10-14	801874	409805	392069	657699	337168	320531	144175	72637	71538
15-19	901277	455211	446066	759604	384960	374644	141673	70251	71422
20-24	894430	441426	453004	755642	375645	379997	138788	65781	73007
25-29	806918	399270	407648	678299	339630	338669	128619	59640	68979
30-34	708369	348315	360054	599127	297870	301257	109242	50445	58797
35-39	564398	277783	286615	485100	240443	244657	79298	37340	41958
40-44	464601	226938	237663	403080	198480	204600	61521	28458	33063
45-49	445523	215631	229892	386986	188870	198116	58537	26761	31776
50-54	485408	236409	248999	425507	208411	217096	59901	27998	31903
55-59	471411	225704	245707	416504	199519	216985	54907	26185	28722
60-64	393378	183822	209556	350449	163997	186452	42929	19825	23104
65-69	319418	144128	175290	284156	128338	155818	35262	15790	19472
70-74	237092	100487	136605	213032	89908	123124	24060	10579	13481
75-79	169174	66746	102428	153087	59966	93121	16087	6780	9307
80-84	104921	36915	68006	96405	33582	62823	8516	3333	5183
85+	81653	25307	56346	75512	23259	52253	6141	2048	4093
TOTAL	9262078	4516189	4745889	7872241	3851468	4020773	1389837	664721	725116

NOTE: DATA FOR TOTAL, MALE, AND FEMALE FOR ALL RACES COMBINED ARE FINAL 1980 CENSUS COUNTS. THE TOTALS FOR WHITE AND ALL OTHER ARE ALSO FINAL COUNTS. DATA BY AGE AND SEX FOR WHITE AND ALL OTHER ARE ESTIMATES PREPARED BY THE OFFICE OF VITAL AND HEALTH STATISTICS BASED ON A PROVISIONAL RELEASE OF POPULATION COUNTS BY AGE, RACE, AND SEX FROM THE 1980 CENSUS.

Table 4.18
Population Changes by County, Michigan Residents, 1970-1980

	Census Population April 1, 1970	Census Population April 1, 1980	Net Change 1970-1980	Percent Change	Natural Increase	Net Migration
STATE	8,875,083	9,262,078	386,995	4.4	680,167	-293,172
Alcona	7,113	9,740	2,627	36.9	-129	2,756
Alger	8,568	9,225	657	7.7	303	354
Allegan	66,575	81,555	14,980	22.5	6,200	8,780
Alpena	30,708	32,315	1,607	5.2	2,182	-575
Antrim	12,612	16,194	3,582	28.4	621	2,961
Arenac	11,149	14,706	3,557	31.9	645	2,912
Baraga	7,789	8,484	695	8.9	316	379
Barry	38,166	45,781	7,615	20.0	2,809	4,806
Bay	117,339	119,881	2,542	2.2	9,561	-7,019
Benzie	8,593	11,205	2,612	30.4	213	2,399
Berrien	163,875	171,276	7,401	4.5	13,908	-6,507
Branch	37,906	40,188	2,282	6.0	2,230	52
Calhoun	141,963	141,557	-406	-0.3	9,634	-10,040
Cass	43,312	49,499	6,187	14.3	3,098	3,089
Charlevoix	16,541	19,907	3,366	20.3	1,076	2,290
Cheboygan	16,573	20,649	4,076	24.6	1,047	3,029
Chippewa	32,412	29,029	-3,383	-10.4	3,411	-6,794
Clare	16,695	23,822	7,127	42.7	512	6,615
Clinton	48,492	55,893	7,401	15.3	4,952	2,449
Crawford	6,482	9,465	2,983	46.0	449	2,534
Delta	35,924	38,947	3,023	8.4	1,927	1,096
Dickinson	23,753	25,341	1,588	6.7	220	1,368
Eaton	68,892	88,337	19,445	28.2	6,191	13,254
Emmet	18,331	22,992	4,661	25.4	1,131	3,530
Genesee	444,341	450,449	6,108	1.4	45,371	-39,263
Gladwin	13,471	19,957	6,486	48.1	649	5,837
Gogebic	20,676	19,686	-990	-4.8	-501	-489
Gd. Traverse	39,175	54,899	15,724	40.1	3,546	12,178
Gratiot	39,246	40,448	1,202	3.1	3,145	-1,943
Hillsdale	37,171	42,071	4,900	13.2	2,570	2,330
Houghton	34,652	37,872	3,220	9.3	276	2,944
Huron	34,083	36,459	2,376	7.0	1,515	861
Ingham	261,039	275,520	14,481	5.5	27,967	-13,486
Ionia	45,848	51,815	5,967	13.0	4,181	1,786
Iosco	24,905	28,349	3,444	13.8	2,928	516
Iron	13,813	13,635	-178	-1.3	-563	385
Isabella	44,594	54,110	9,516	21.3	4,143	5,373
Jackson	143,274	151,495	8,221	5.7	9,854	-1,633
Kalamazoo	201,550	212,378	10,828	5.4	16,238	-5,410
Kalkaska	5,272	10,952	5,680	107.7	598	5,082
Kent	411,044	444,506	33,462	8.1	36,102	-2,640
Keweenaw	2,264	1,963	-301	-13.3	-77	-224
Lake	5,661	7,711	2,050	36.2	-140	2,190
Lapeer	52,317	70,038	17,721	33.9	5,938	11,783
Leelanau	10,872	14,007	3,135	28.8	421	2,714
Lenawee	81,609	89,948	8,339	10.2	7,374	965
Livingston	58,967	100,289	41,322	70.1	6,532	34,790
Luce	6,789	6,659	-130	-1.9	279	-409
Mackinac	9,660	10,178	518	5.4	316	202
Macomb	625,309	694,600	69,291	11.1	56,347	12,944
Manistee	20,094	23,019	2,925	14.6	280	2,645
Marquette	64,686	74,101	9,415	14.6	7,423	1,992
Mason	22,612	26,365	3,753	16.6	870	2,883
Mecosta	27,992	36,961	8,969	32.0	2,216	6,753
Menominee	24,587	26,201	1,614	6.6	643	971
Midland	63,769	73,578	9,809	15.4	7,229	2,580
Missaukee	7,126	10,009	2,883	40.5	554	2,329
Monroe	118,479	134,659	16,180	13.7	11,220	4,960
Montcalm	39,660	47,555	7,895	19.9	3,109	4,786
Montmorency	5,247	7,492	2,245	42.8	103	2,142
Muskegon	157,426	157,589	163	0.1	12,095	-11,932
Newaygo	27,992	34,917	6,925	24.7	1,864	5,061
Oakland	907,871	1,011,793	103,922	11.4	71,768	32,154
Oceana	17,984	22,002	4,018	22.3	1,412	2,606
Ogemaw	11,903	16,436	4,533	38.1	281	4,252
Ontonagon	10,548	9,861	-687	-6.5	375	-1,062
Osceola	14,838	18,928	4,090	27.6	1,063	3,027
Oscoda	4,726	6,858	2,132	45.1	-23	2,155
Otsego	10,422	14,993	4,571	43.9	1,149	3,422
Ottawa	128,181	157,174	28,993	22.6	14,176	14,817
Presque Isle	12,836	14,267	1,431	11.1	712	719
Roscommon	9,892	16,374	6,482	65.5	-140	6,622
Saginaw	219,743	228,059	8,316	3.8	21,567	-13,251
St. Clair	120,175	138,802	18,627	15.5	8,517	10,110
St. Joseph	47,392	56,083	8,691	18.3	3,909	4,782
Sanilac	34,889	40,789	5,900	16.9	1,950	3,950
Schoolcraft	8,226	8,575	349	4.2	195	154
Shiawassee	63,075	71,140	8,065	12.8	6,627	1,438
Tuscola	48,603	56,961	8,358	17.2	4,333	4,025
Van Buren	56,173	66,814	10,641	18.9	4,480	6,161
Washtenaw	234,103	264,748	30,645	13.1	24,716	5,929
Wayne	2,666,751	2,337,891	-328,860	-12.3	156,717	-485,577
Wexford	19,717	25,102	5,385	27.3	1,328	4,057
County Not Stated	-	-	-	-	-67	67

TABLE 4.19 -- Abridged Life Table, Michigan Residents, 1980

AGE	nqx(1)[1]	lx(2)[1]	ndx(3)[1]	nLx(4)[1]	Tx(5)[1]	$\overset{o}{e}x$(6)[1]
0-1	0.01266	100000.	1266.	98873.	7344849.	73.4
1-5	0.00230	98734.	227.	394395.	7245976.	73.4
5-10	0.00143	98507.	141.	492147.	6851581.	69.6
10-15	0.00149	98366.	146.	491521.	6359434.	64.7
15-20	0.00415	98220.	407.	490176.	5867913.	59.7
20-25	0.00604	97813.	590.	487635.	5377737.	55.0
25-30	0.00640	97223.	622.	484580.	4890103.	50.3
30-35	0.00710	96601.	685.	481344.	4405523.	45.6
35-40	0.00925	95916.	887.	477445.	3924179.	40.9
40-45	0.01383	95030.	1314.	472106.	3446679.	36.3
45-50	0.02193	93716.	2055.	463810.	2974573.	31.7
50-55	0.03369	91660.	3087.	451118.	2510763.	27.4
55-60	0.05217	88573.	4621.	432076.	2059645.	23.3
60-65	0.08038	83952.	6747.	403851.	1627569.	19.4
65-70	0.11938	77205.	9216.	364052.	1223719.	15.9
70-75	0.17462	67989.	11872.	311265.	859667.	12.6
75-80	0.25167	56116.	14122.	245965.	548362.	9.8
80-85	0.36375	41994.	15275.	171473.	302397.	7.2
85+	1.00000	26719.	26719.	130923.	130923.	4.9

[1] Definitions of life table values are contained in the Technical Notes.

TABLE 4.20 -- Abridged Life Table for Males, Michigan Residents, 1980

AGE	nqx(1)[1]	lx(2)[1]	ndx(3)[1]	nLx(4)[1]	Tx(5)[1]	$\overset{o}{e}x$(6)[1]
0-1	0.01403	100000.	1403.	98757.	7002549.	70.0
1-5	0.00267	98597.	263.	393756.	6903792.	70.0
5-10	0.00159	98334.	156,	491244.	6510036.	66.2
10-15	0.00177	98179.	174.	490549.	6018792.	61.3
15-20	0.00596	98005.	584.	488706.	5528243.	56.4
20-25	0.00875	97421.	852.	485038.	5039537.	51.7
25-30	0.00912	96569.	880.	480664.	4554499.	47.2
30-35	0.00976	95689.	934.	476168.	4073836.	42.6
35-40	0.01210	94756.	1146.	471060.	3597668.	38.0
40-45	0.01758	93609.	1645.	464238.	3126608.	33.4
45-50	0.02838	91964.	2610.	453765.	2662370.	29.0
50-55	0.04355	89355.	3891.	437738.	2208605.	24.7
55-60	0.06935	85464.	5926.	413451.	1770867.	20.7
60-65	0.10601	79538.	8431.	377697.	1357417.	17.1
65-70	0.15666	71107.	11139.	328839.	979719.	13.8
70-75	0.23299	59967.	13971.	265726.	650880.	10.9
75-80	0.32750	45996.	15063.	192336.	385155.	8.4
80-85	0.45395	30933.	14042.	118498.	192818.	6.2
85+	1.00000	16891.	16891.	74321.	74321.	4.4

[1] IBID.

TABLE 4.21 -- Abridged Life Table for Females, Michigan Residents, 1980

AGE	nqx(1)[1]	lx(2)[1]	ndx(3)[1]	nLx(4)[1]	Tx(5)[1]	ex(6)[1]
0-1	0.01123	100000.	1123.	98995.	7686724.	76.9
1-5	0.00192	98877.	189.	395065.	7587729.	76.7
5-10	0.00127	98688.	125.	493095.	7192664.	72.9
10-15	0.00119	98563.	117.	492542.	6699569.	68.0
15-20	0.00229	98446.	225.	491712.	6207027.	63.1
20-25	0.00340	98221.	333.	490301.	5715315.	58.2
25-30	0.00373	97888.	364.	488549.	5225014.	53.4
30-35	0.00451	97523.	439.	486573.	4736465.	48.6
35-40	0.00648	97084.	626.	483964.	4249891.	43.8
40-45	0.01024	96456.	988.	479995.	3765927.	39.0
45-50	0.01585	95468.	1513.	473828.	3285933.	34.4
50-55	0.02425	93955.	2276.	464458.	2812105.	29.9
55-60	0.03614	91678.	3313.	450688.	2347647.	25.6
60-65	0.05734	88365.	5066.	429990.	1896959.	21.5
65-70	0.08761	83299.	7296.	399239.	1466969.	17.6
70-75	0.12915	76001.	9815.	356680.	1067730.	14.0
75-80	0.19816	66186.	13115.	299518.	711051.	10.7
80-85	0.30947	53071.	16424.	224633.	411532.	7.8
85+	1.00000	36647.	36647.	186899.	186899.	5.1

[1] IBID.

TABLE 4.22 -- Abridged Life Table for Whites, Michigan Residents, 1980

AGE	nqx(1)[1]	lx(2)[1]	ndx(3)[1]	nLx(4)[1]	Tx(5)[1]	ex(6)[1]
0-1	0.01064	100000.	1064.	99056.	7417639.	74.2
1-5	0.00207	98936.	205.	395279.	7318583.	74.0
5-10	0.00151	98731.	149.	493247.	6923304.	70.1
10-15	0.00147	98582.	145.	492604.	6430057.	65.2
15-20	0.00412	98438.	406.	491257.	5937453.	60.3
20-25	0.00547	98032.	536.	488842.	5446196.	55.6
25-30	0.00514	97497.	501.	486230.	4957353.	50.8
30-35	0.00549	96996.	532.	483689.	4471124.	46.1
35-40	0.00726	96464.	700.	480692.	3987435.	41.3
40-45	0.01178	95764.	1127.	476238.	3506742.	36.6
45-50	0.01941	94637.	1836.	468956.	3030504.	32.0
50-55	0.03090	92801.	2867.	457373.	2561548.	27.6
55-60	0.04904	89934.	4410.	439423.	2104175.	23.4
60-65	0.07724	85524.	6606.	412107.	1664753.	19.5
65-70	0.11687	78918.	9223.	372672.	1252646.	15.9
70-75	0.17324	69695.	12074.	319383.	879974.	12.6
75-80	0.25100	57621.	14463.	252709.	560591.	9.7
80-85	0.36427	43158.	15721.	176183.	307882.	7.1
85+	1.00000	27437.	27437.	131699.	131699.	4.8

[1] IBID.

TABLE 4.23 -- Abridged Life Table for White Males, Michigan Residents, 1980

AGE	nqx(1)^1	lx(2)^1	ndx(3)^1	nLx(4)^1	Tx(5)^1	$\overset{o}{e}$x(6)^1
0-1	0.01211	100000.	1211.	98925.	7085907.	70.9
1-5	0.00224	98789.	221.	394657.	6986963.	70.7
5-10	0.00166	98568.	164.	492391.	6592325.	66.9
10-15	0.00169	98405.	166.	491695.	6099934.	62.0
15-20	0.00594	98238.	583.	489865.	5608240.	57.1
20-25	0.00812	97655.	792.	486325.	5118375.	52.4
25-30	0.00744	96863.	720.	482500.	4632050.	47.8
30-35	0.00751	96143.	722.	478941.	4149550.	43.2
35-40	0.00918	95421.	875.	475051.	3670608.	38.5
40-45	0.01450	94546.	1370.	469607.	3195557.	33.8
45-50	0.02508	93176.	2336.	460511.	2725950.	29.3
50-55	0.04011	90840.	3643.	445793.	2265439.	24.9
55-60	0.06546	87197.	5708.	422690.	1819646.	20.9
60-65	0.10221	81489.	8329.	387786.	1396956.	17.1
65-70	0.15433	73160.	11291.	338855.	1009170.	13.8
70-75	0.23390	61870.	14471.	274059.	670315.	10.8
75-80	0.32806	47399.	15550.	198130.	396256.	8.4
80-85	0.45576	31849.	14515.	121858.	198127.	6.2
85+	1.00000	17334.	17334.	76269.	76269.	4.4

[1] IBID.

TABLE 4.24 -- Abridged Life Table for White Females, Michigan Residents, 1980

AGE	nqx(1)^1	lx(2)^1	ndx(3)^1	nLx(4)^1	Tx(5)^1	$\overset{o}{e}$x(6)^1
0-1	0.00910	100000.	910.	99195.	7752611.	77.5
1-5	0.00189	99090.	187.	395930.	7653416.	77.2
5-10	0.00135	98902.	133.	494145.	7257486.	73.4
10-15	0.00124	98769.	122.	493560.	6763340.	68.5
15-20	0.00226	98647.	222.	492714.	6269781.	63.6
20-25	0.00284	98425.	279.	491439.	5777066.	58.7
25-30	0.00284	98146.	278.	490047.	5285627.	53.9
30-35	0.00348	97868.	341.	488539.	4795580.	49.0
35-40	0.00537	97527.	523.	486443.	4307041.	44.2
40-45	0.00913	97004.	885.	482980.	3820597.	39.4
45-50	0.01397	96119.	1342.	477489.	3337618.	34.7
50-55	0.02198	94777.	2083.	469048.	2860128.	30.2
55-60	0.03371	92694.	3125.	456245.	2391080.	25.8
60-65	0.05476	89569.	4904.	436433.	1934835.	21.6
65-70	0.08490	84665.	7188.	406372.	1498402.	17.7
70-75	0.12624	77477.	9780.	364221.	1092030.	14.1
75-80	0.19722	67697.	13351.	306582.	727809.	10.8
80-85	0.31001	54347.	16847.	229981.	421227.	7.8
85+	1.00000	37499.	37499.	191246.	191246.	5.1

[1] IBID

TABLE 4.25 -- Abridged Life Table for All Other, Michigan Residents, 1980

AGE	nqx(1)[1]	lx(2)[1]	ndx(3)[1]	nLx(4)[1]	Tx(5)[1]	e̊x(6)[1]
0-1	0.02109	100000.	2109.	98109.	6925993.	69.3
1-5	0.00326	97891.	318.	390719.	6827884.	69.8
5-10	0.00112	97573.	109.	487565.	6437164.	66.0
10-15	0.00156	97464.	152.	487003.	5949599.	61.0
15-20	0.00427	97312.	415.	485675.	5462596.	56.1
20-25	0.00915	96897.	886.	482442.	4976920.	51.4
25-30	0.01299	96011.	1246.	477065.	4494478.	46.8
30-35	0.01586	94764.	1502.	470220.	4017413.	42.4
35-40	0.02135	93262.	1991.	461536.	3547193.	38.0
40-45	0.02720	91271.	2482.	450447.	3085657.	33.8
45-50	0.03850	88789.	3418.	435830.	2635210.	29.7
50-55	0.05330	85371.	4550.	416041.	2199381.	25.8
55-60	0.07559	80821.	6109.	389529.	1783340.	22.1
60-65	0.10557	74712.	7887.	354511.	1393811.	18.7
65-70	0.13933	66825.	9310.	311445.	1039300.	15.6
70-75	0.18677	57515.	10742.	261294.	727855.	12.7
75-80	0.25793	46773.	12064.	204055.	466561.	10.0
80-85	0.35782	34709.	12420.	142143.	262506.	7.6
85+	1.00000	22289.	22289.	120363.	120363.	5.4

[1] IBID.

TABLE 4.26 -- Abridged Life Table for Other Males, Michigan Residents, 1980

AGE	nqx(1)[1]	lx(2)[1]	ndx(3)[1]	nLx(4)[1]	Tx(5)[1]	e̊x(6)[1]
0-1	0.02218	100000.	2218.	98048.	6525851.	65.3
1-5	0.00448	97782.	438.	389940.	6427803.	65.7
5-10	0.00129	97344.	125.	486378.	6037864.	62.0
10-15	0.00214	97220.	207.	485677.	5551485.	57.1
15-20	0.00611	97012.	592.	483785.	5065809.	52.2
20-25	0.01233	96420.	1188.	479375.	4582024.	47.5
25-30	0.01862	95232.	1773.	471926.	4102649.	43.1
30-35	0.02295	93459.	2144.	462150.	3630722.	38.8
35-40	0.03075	91315.	2807.	449825.	3168572.	34.7
40-45	0.03881	88507.	3434.	434278.	2718747.	30.7
45-50	0.05140	85073.	4373.	414876.	2284469.	26.9
50-55	0.06876	80701.	5549.	390262.	1869594.	23.2
55-60	0.09845	75152.	7399.	358039.	1479331.	19.7
60-65	0.13680	67753.	9268.	316192.	1121293.	16.6
65-70	0.17533	58485.	10254.	267125.	805101.	13.8
70-75	0.22524	48232.	10863.	214374.	537976.	11.2
75-80	0.32241	37368.	12048.	156755.	323602.	8.7
80-85	0.43536	25321.	11023.	98220.	166847.	6.6
5+	1.00000	14297.	14297.	68627.	68627.	4.8

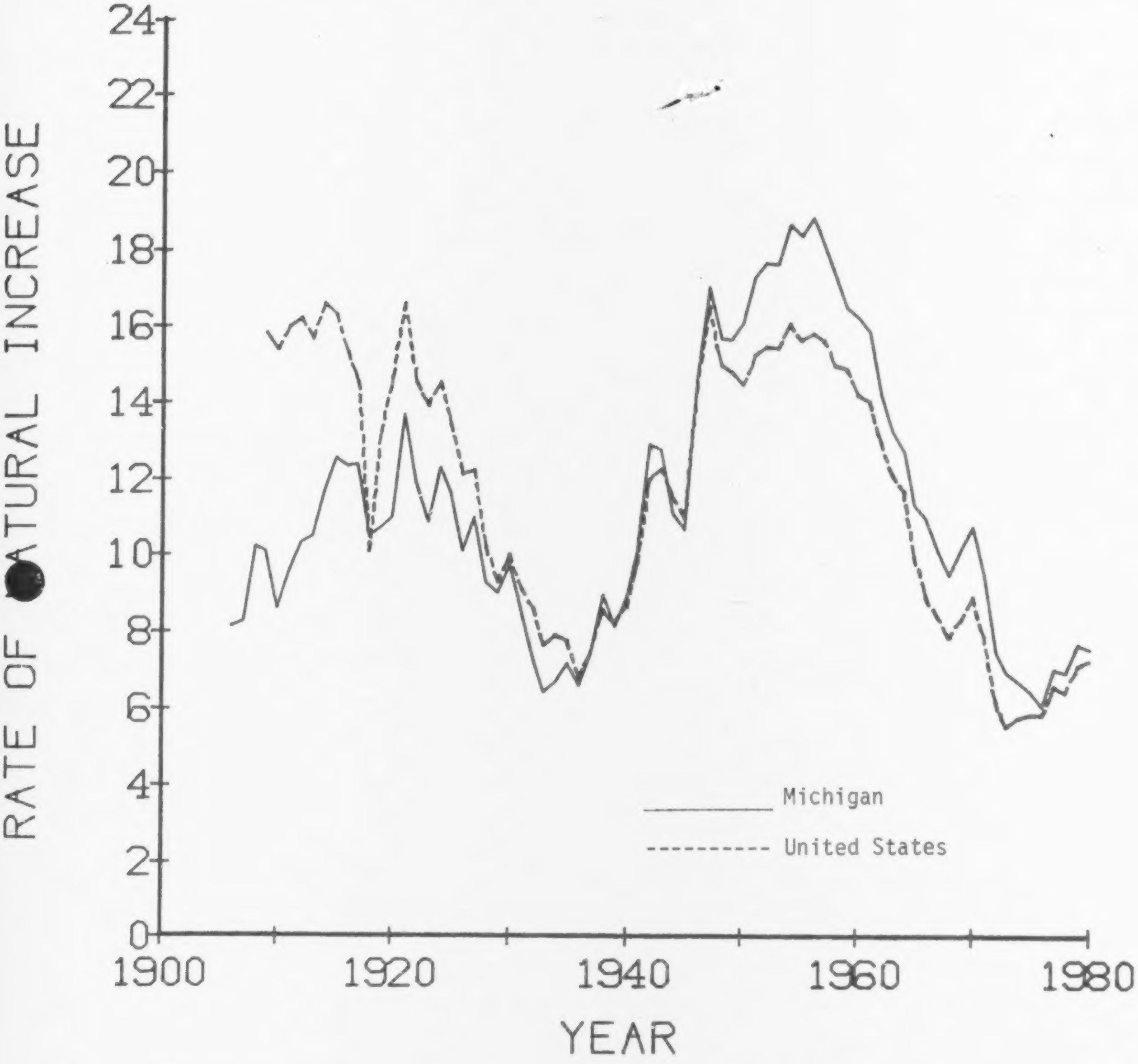
[1] IBID.

TABLE 4.27 -- Abridged Life Table for Other Females, Michigan Residents, 1980

AGE	nqx(1)[1]	lx(2)[1]	ndx(3)[1]	nLx(4)[1]	Tx(5)[1]	e̊x(6)[1]
0-1	0.01999	100000.	1999.	98172.	7331441.	73.3
1-5	0.00201	98001.	196.	391509.	7233269.	73.8
5-10	0.00096	97805.	93.	488767.	6841760.	70.0
10-15	0.00098	97711.	96.	488349.	6352993.	65.0
15-20	0.00245	97616.	239.	487590.	5864644.	60.1
20-25	0.00629	97377.	612.	485469.	5377055.	55.2
25-30	0.00809	96765.	783.	481937.	4891586.	50.6
30-35	0.00974	95983.	934.	477670.	4409649.	45.9
35-40	0.01291	95048.	1227.	472314.	3931979.	41.4
40-45	0.01711	93821.	1605.	465368.	3459664.	36.9
45-50	0.02750	92217.	2535.	455150.	2994296.	32.5
50-55	0.03953	89682.	3544.	439992.	2539146.	28.3
55-60	0.05428	86137.	4675.	419583.	2099154.	24.4
60-65	0.07794	81462.	6348.	392173.	1679571.	20.6
65-70	0.10903	75114.	8189.	355940.	1287397.	17.1
70-75	0.15534	66925.	10396.	309373.	931457.	13.9
75-80	0.20758	56529.	11734.	253972.	622084.	11.0
80-85	0.30305	44795.	13575.	190156.	368112.	8.2
85+	1.00000	31220.	31220.	177956.	177956.	5.7

[1] IBID

FIGURE 4.1 - Rate of Natural Increase,[1] Michigan 1906-1980, and the United States, 1909-1980.[2]



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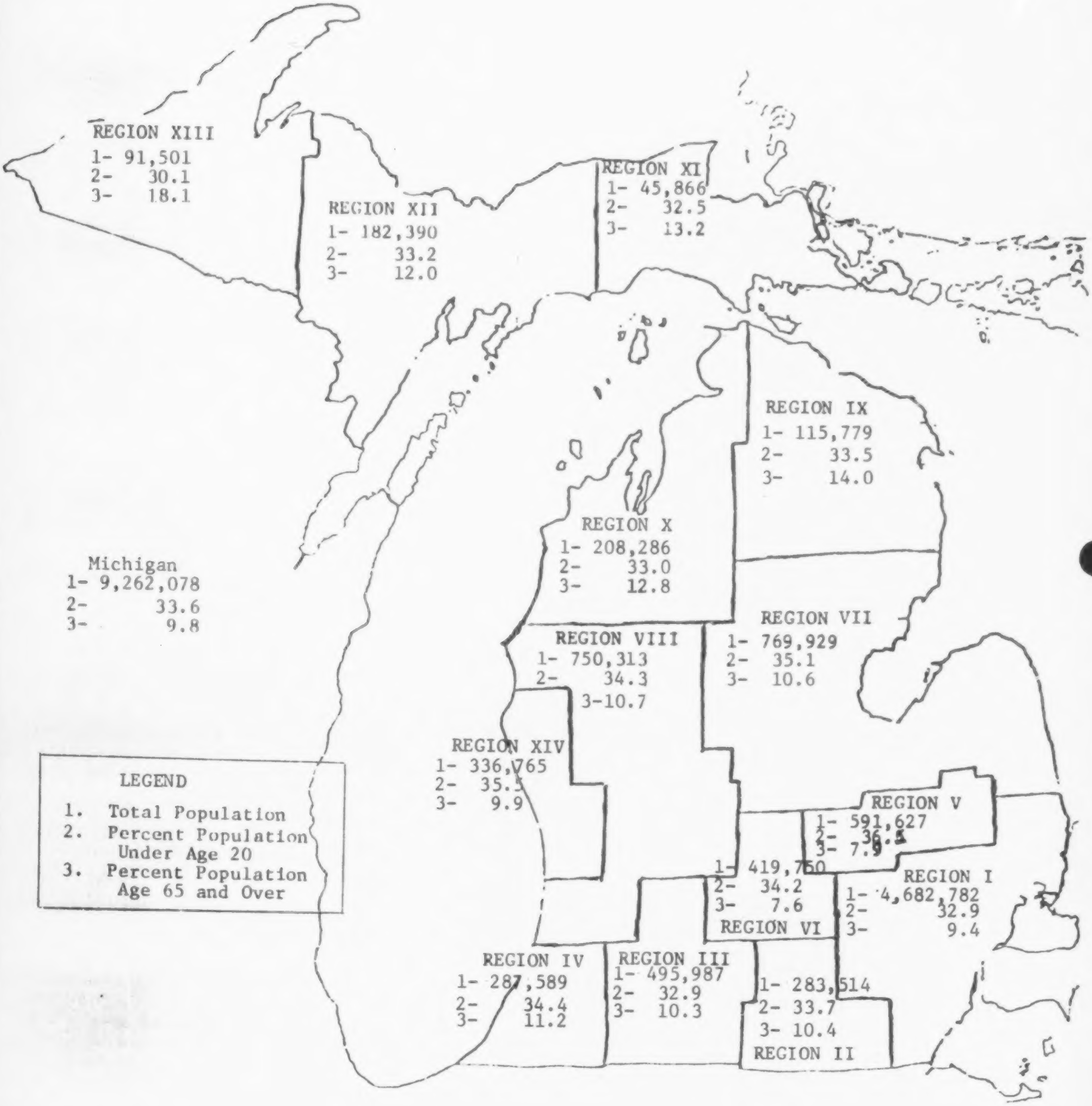
[1] Excess of live births over deaths per 1,000 population.

[2] Rates for the United States for 1909-1932 are based on death rates for the death-registration states and estimated birth rates for the United States, adjusted for under-registration. For 1933-1959 rates are based on registered deaths in the United States and births adjusted for underregistration. After 1959 rates are based on registered births and deaths. The rates for 1979 and 1980 are provisional.

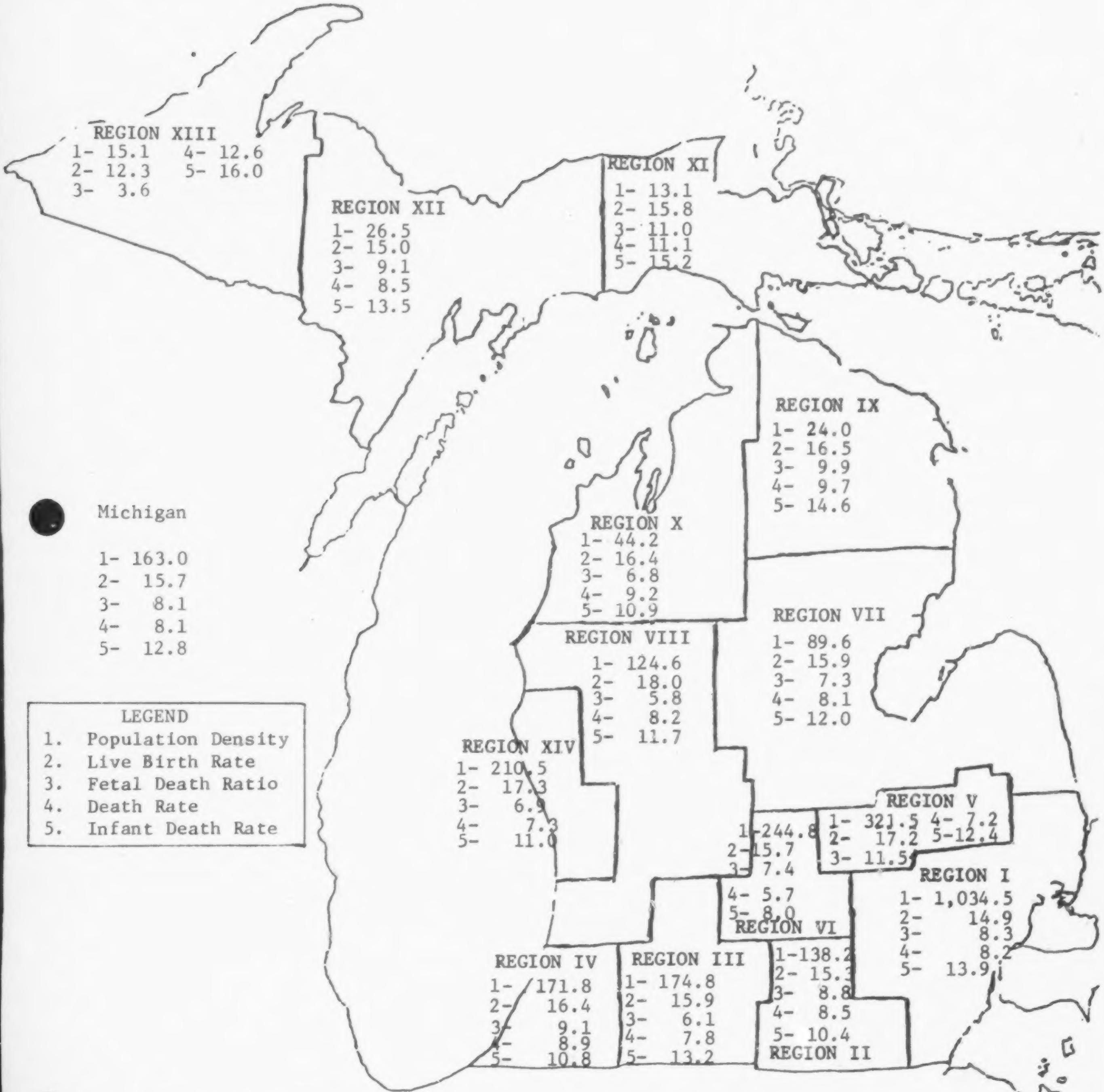
FIGURE 4.2 Total Population, Percent Under Age 20 and Percent Age 65 and over by Region[1], Michigan, 1980


REGION XIII
1- 91,501
2- 30.1
3- 18.1
REGION XII
1- 182,390
2- 33.2
3- 12.0
REGION XI
1- 45,866
2- 32.5
3- 13.2
REGION IX
1- 115,779
2- 33.5
3- 14.0
REGION X
1- 208,286
2- 33.0
3- 12.8
Michigan
1- 9,262,078
2- 33.6
3- 9.8
REGION VIII
1- 750,313
2- 34.3
3-10.7
REGION VII
1- 769,929
2- 35.1
3- 10.6
REGION XIV
1- 336,765
2- 35.5
3- 9.9
LEGEND
1. Total Population
2. Percent Population Under Age 20
3. Percent Population Age 65 and Over
REGION V
1- 591,627
2- 36.5
3- 7.9
1- 419,760
2- 34.2
3- 7.6
REGION VI
REGION I
1- 4,682,782
2- 32.9
3- 9.4
REGION IV
1- 287,589
2- 34.4
3- 11.2
REGION III
1- 495,987
2- 32.9
3- 10.3
1- 283,514
2- 33.7
3- 10.4
REGION II

---

[1] State Planning and Developement Regions - August, 1973

FIGURE 4.3 Population Density,[1] Live Birth Rates, Fetal Death Ratios, Death Rates and Infant Mortality Rates by Region[2], Michigan Residents, 1980

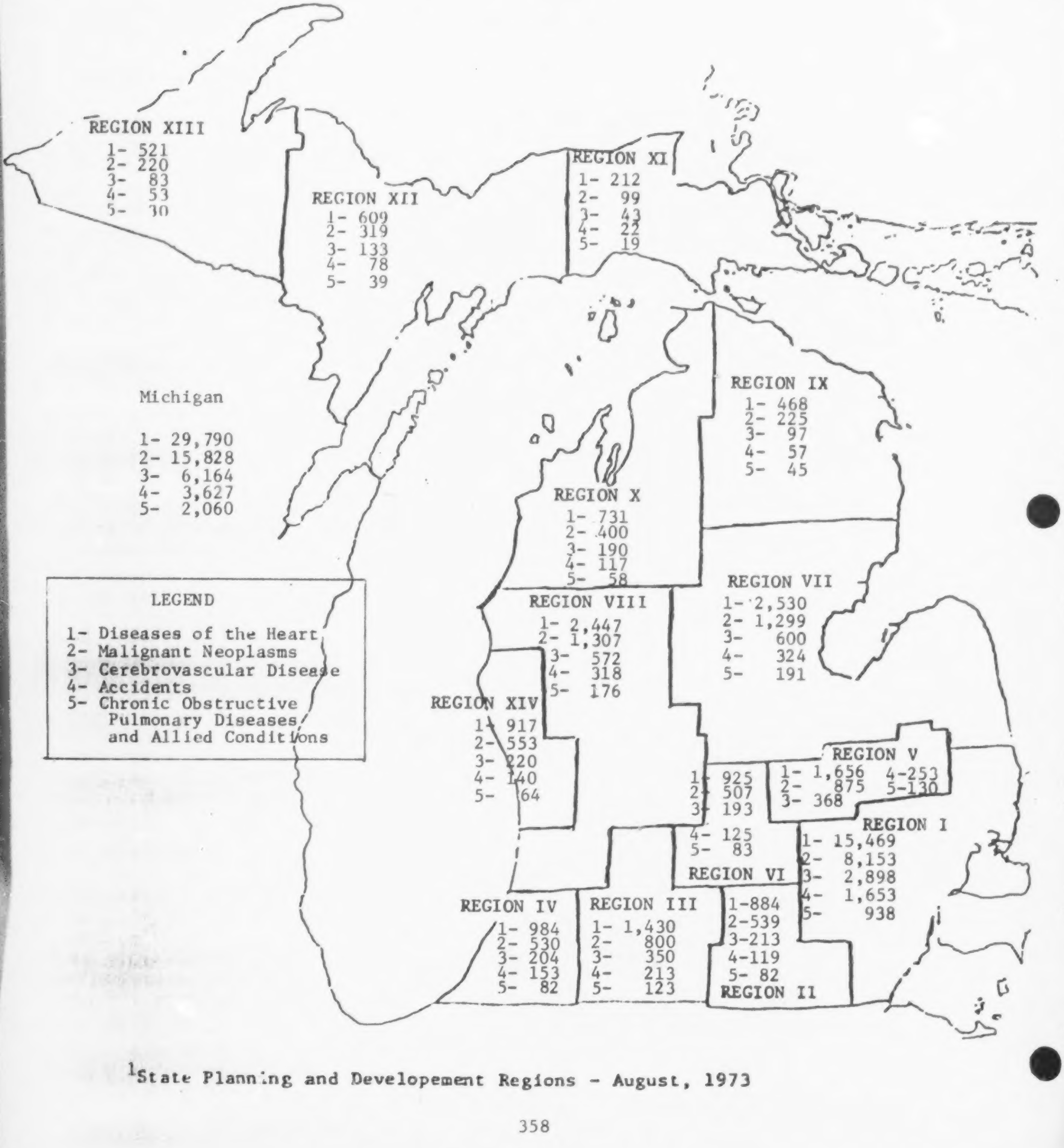

REGION XIII
1- 15.1
2- 12.3
3- 3.6
4- 12.6
5- 16.0
REGION XII
1- 26.5
2- 15.0
3- 9.1
4- 8.5
5- 13.5
REGION XI
1- 13.1
2- 15.8
3- 11.0
4- 11.1
5- 15.2
REGION IX
1- 24.0
2- 16.5
3- 9.9
4- 9.7
5- 14.6
Michigan
1- 163.0
2- 15.7
3- 8.1
4- 8.1
5- 12.8
REGION X
1- 44.2
2- 16.4
3- 6.8
4- 9.2
5- 10.9
REGION VII
1- 89.6
2- 15.9
3- 7.3
4- 8.1
5- 12.0
REGION VIII
1- 124.6
2- 18.0
3- 5.8
4- 8.2
5- 11.7
LEGEND
1. Population Density
2. Live Birth Rate
3. Fetal Death Ratio
4. Death Rate
5. Infant Death Rate
REGION XIV
1- 210.5
2- 17.3
3- 6.9
4- 7.3
5- 11.0
REGION V
1- 321.5
2- 17.2
3- 11.5
4- 7.2
5-12.4
1-244.8
2-15.7
3- 7.4
4- 5.7
5- 8.0
REGION VI
REGION I
1- 1,034.5
2- 14.9
3- 8.3
4- 8.2
5- 13.9
REGION IV
1- 171.8
2- 16.4
3- 9.1
4- 8.9
5- 10.8
REGION III
1- 174.8
2- 15.9
3- 6.1
4- 7.8
5- 13.2
1-138.2
2- 15.3
3- 8.8
4- 8.5
5- 10.4
REGION II

---

[1] Number of persons per square mile.

[2] State Planning and Developement Regions - August, 1973

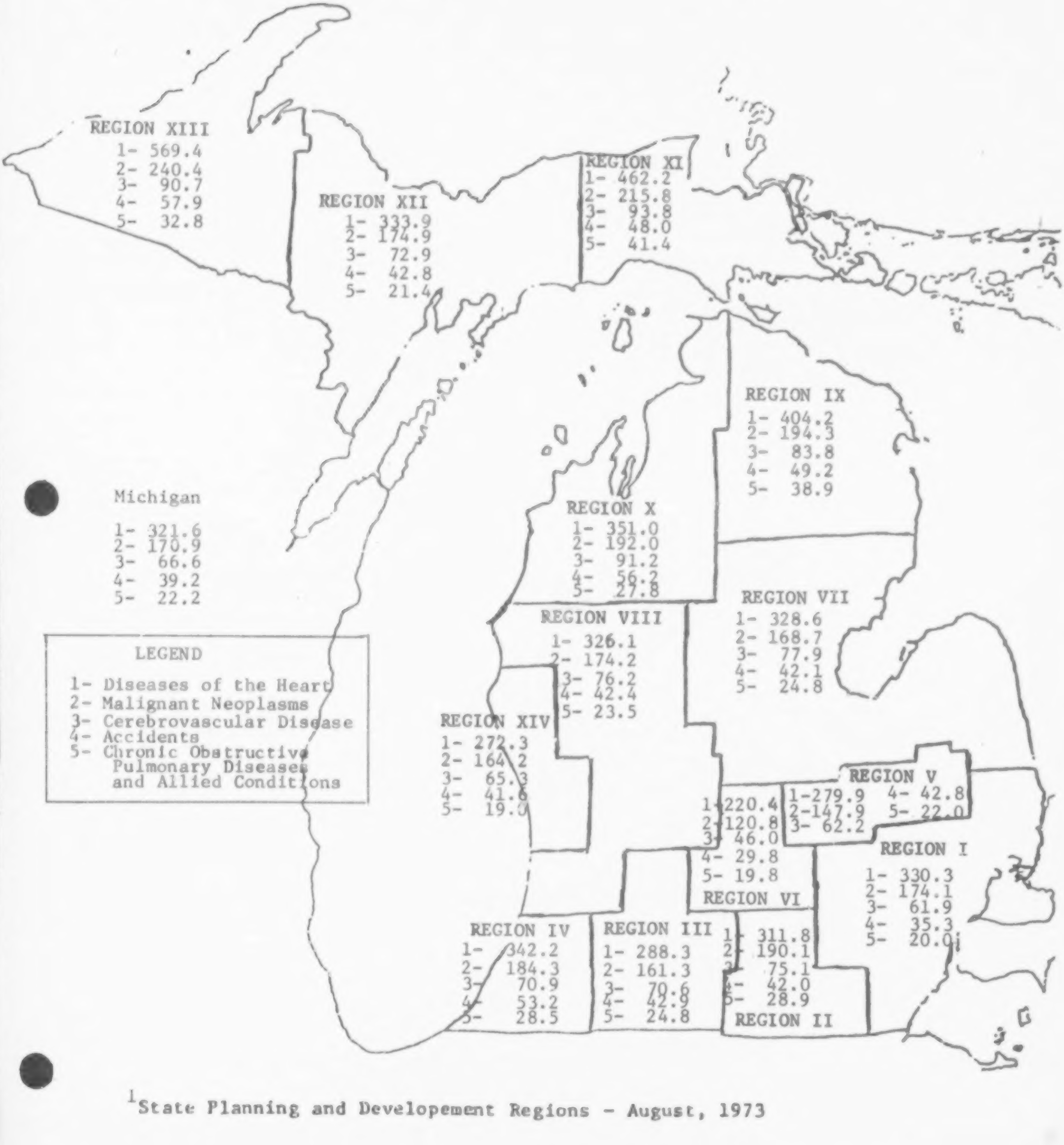
FIGURE 4.4 Leading Causes of Death; Number of Deaths by Region[1], Michigan Residents, 1980


REGION XIII
1- 521
2- 220
3- 83
4- 53
5- 30
REGION XII
1- 609
2- 319
3- 133
4- 78
5- 39
REGION XI
1- 212
2- 99
3- 43
4- 22
5- 19
REGION IX
1- 468
2- 225
3- 97
4- 57
5- 45
Michigan
1- 29,790
2- 15,828
3- 6,164
4- 3,627
5- 2,060
REGION X
1- 731
2- 400
3- 190
4- 117
5- 58
REGION VIII
1- 2,447
2- 1,307
3- 572
4- 318
5- 176
REGION VII
1- 2,530
2- 1,299
3- 600
4- 324
5- 191
LEGEND
1- Diseases of the Heart
2- Malignant Neoplasms
3- Cerebrovascular Disease
4- Accidents
5- Chronic Obstructive Pulmonary Diseases and Allied Conditions
REGION XIV
1- 917
2- 553
3- 220
4- 140
5- 64
1- 925
2- 507
3- 193
4- 125
5- 83
REGION VI
REGION V
1- 1,656
2- 875
3- 368
4-253
5-130
REGION I
1- 15,469
2- 8,153
3- 2,898
4- 1,653
5- 938
REGION IV
1- 984
2- 530
3- 204
4- 153
5- 82
REGION III
1- 1,430
2- 800
3- 350
4- 213
5- 123
1-884
2-539
3-213
4-119
5- 82
REGION II

---

[1] State Planning and Developement Regions - August, 1973

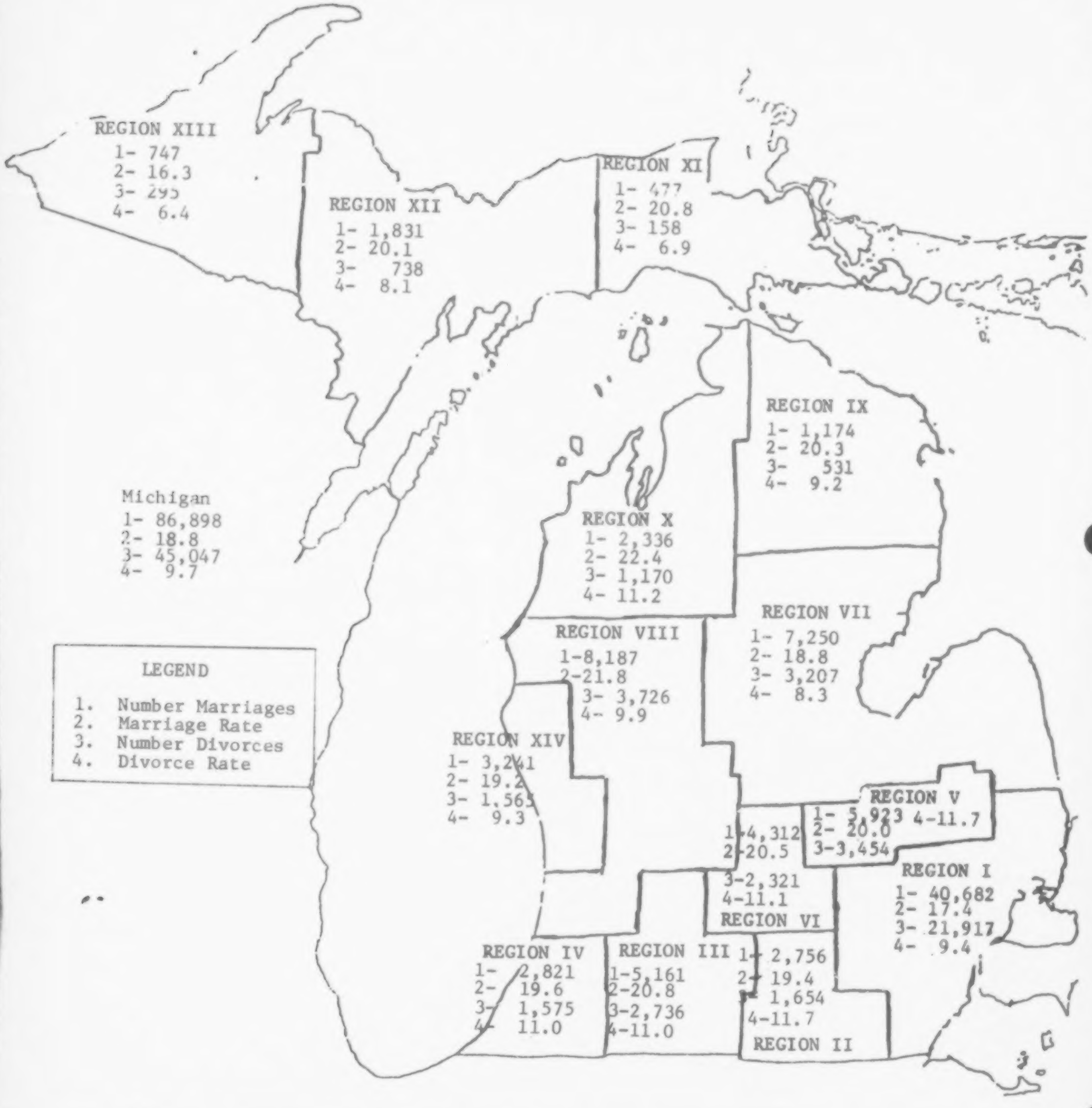
FIGURE 4.5 Leading Causes of Death: Death Rates by Region[1], Michigan Residents, 1980


REGION XIII
1- 569.4
2- 240.4
3- 90.7
4- 57.9
5- 32.8
REGION XII
1- 333.9
2- 174.9
3- 72.9
4- 42.8
5- 21.4
REGION XI
1- 462.2
2- 215.8
3- 93.8
4- 48.0
5- 41.4
REGION IX
1- 404.2
2- 194.3
3- 83.8
4- 49.2
5- 38.9
Michigan
1- 321.6
2- 170.9
3- 66.6
4- 39.2
5- 22.2
REGION X
1- 351.0
2- 192.0
3- 91.2
4- 56.2
5- 27.8
REGION VII
1- 328.6
2- 168.7
3- 77.9
4- 42.1
5- 24.8
REGION VIII
1- 326.1
2- 174.2
3- 76.2
4- 42.4
5- 23.5
LEGEND
1- Diseases of the Heart
2- Malignant Neoplasms
3- Cerebrovascular Disease
4- Accidents
5- Chronic Obstructive Pulmonary Diseases and Allied Conditions
REGION XIV
1- 272.3
2- 164.2
3- 65.3
4- 41.6
5- 19.0
REGION V
1-279.9
2-147.9
3- 62.2
4- 42.8
5- 22.0
1- 220.4
2- 120.8
3- 46.0
4- 29.8
5- 19.8
REGION VI
REGION I
1- 330.3
2- 174.1
3- 61.9
4- 35.3
5- 20.0
REGION IV
1- 342.2
2- 184.3
3- 70.9
4- 53.2
5- 28.5
REGION III
1- 288.3
2- 161.3
3- 70.6
4- 42.9
5- 24.8
1- 311.8
2- 190.1
3- 75.1
4- 42.0
5- 28.9
REGION II

---

[1] State Planning and Developement Regions - August, 1973

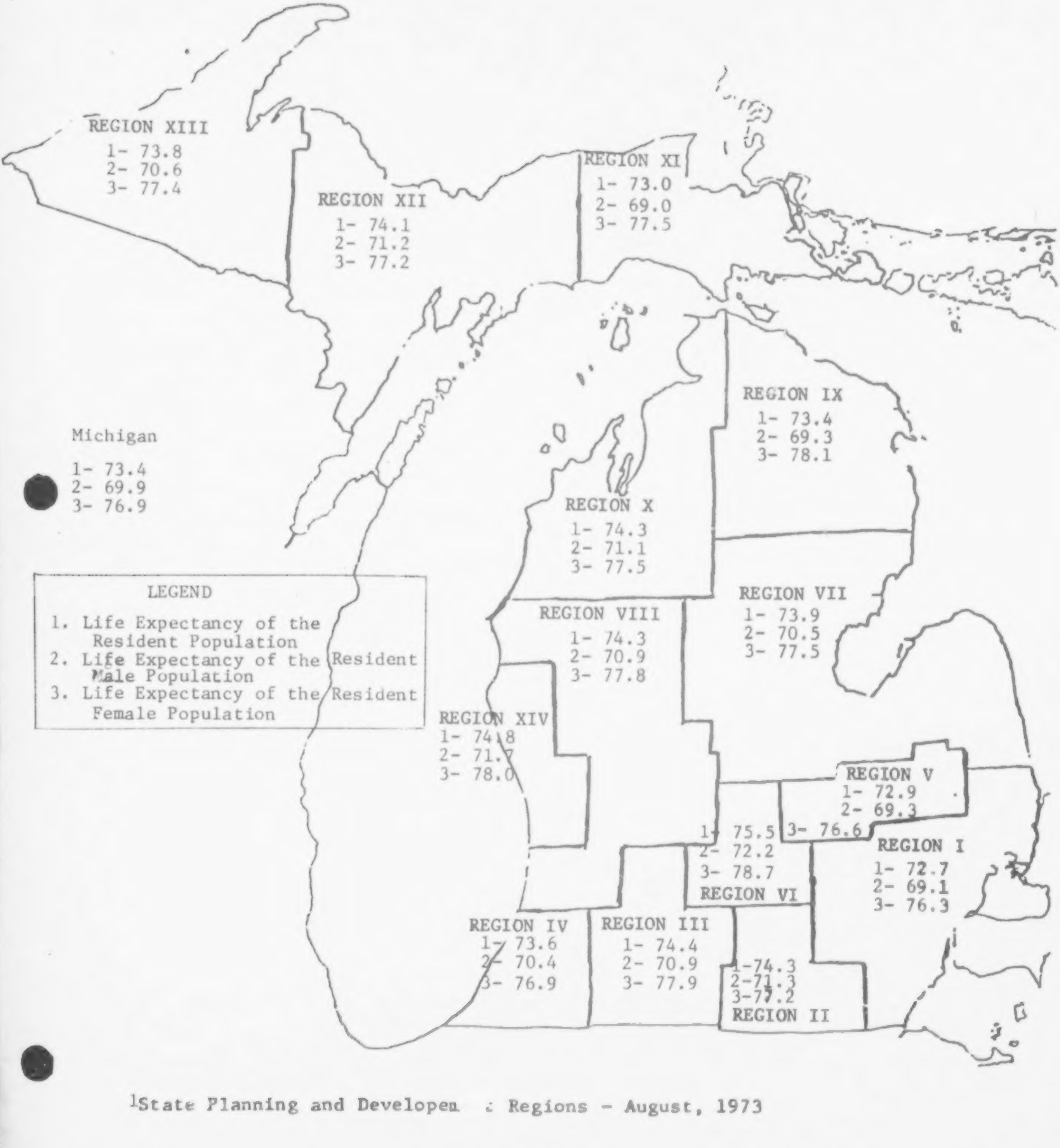
FIGURE 4.6 Marriages and Marriage Rates, Divorces and Divorce Rates by Region[1], Michigan Residents, 1980


REGION XIII
1- 747
2- 16.3
3- 295
4- 6.4
REGION XII
1- 1,831
2- 20.1
3- 738
4- 8.1
REGION XI
1- 477
2- 20.8
3- 158
4- 6.9
REGION IX
1- 1,174
2- 20.3
3- 531
4- 9.2
Michigan
1- 86,898
2- 18.8
3- 45,047
4- 9.7
REGION X
1- 2,336
2- 22.4
3- 1,170
4- 11.2
REGION VIII
1-8,187
2-21.8
3- 3,726
4- 9.9
REGION VII
1- 7,250
2- 18.8
3- 3,207
4- 8.3
LEGEND
1. Number Marriages
2. Marriage Rate
3. Number Divorces
4. Divorce Rate
REGION XIV
1- 3,241
2- 19.2
3- 1,565
4- 9.3
REGION V
1- 5,923 4-11.7
2- 20.0
3-3,454
1-4,312
2-20.5
3-2,321
4-11.1
REGION VI
REGION I
1- 40,682
2- 17.4
3- 21,917
4- 9.4
REGION IV
1- 2,821
2- 19.6
3- 1,575
4- 11.0
REGION III
1-5,161
2-20.8
3-2,736
4-11.0
1- 2,756
2- 19.4
3- 1,654
4-11.7
REGION II

---

[1] State Planning and Developement Regions - August, 1973

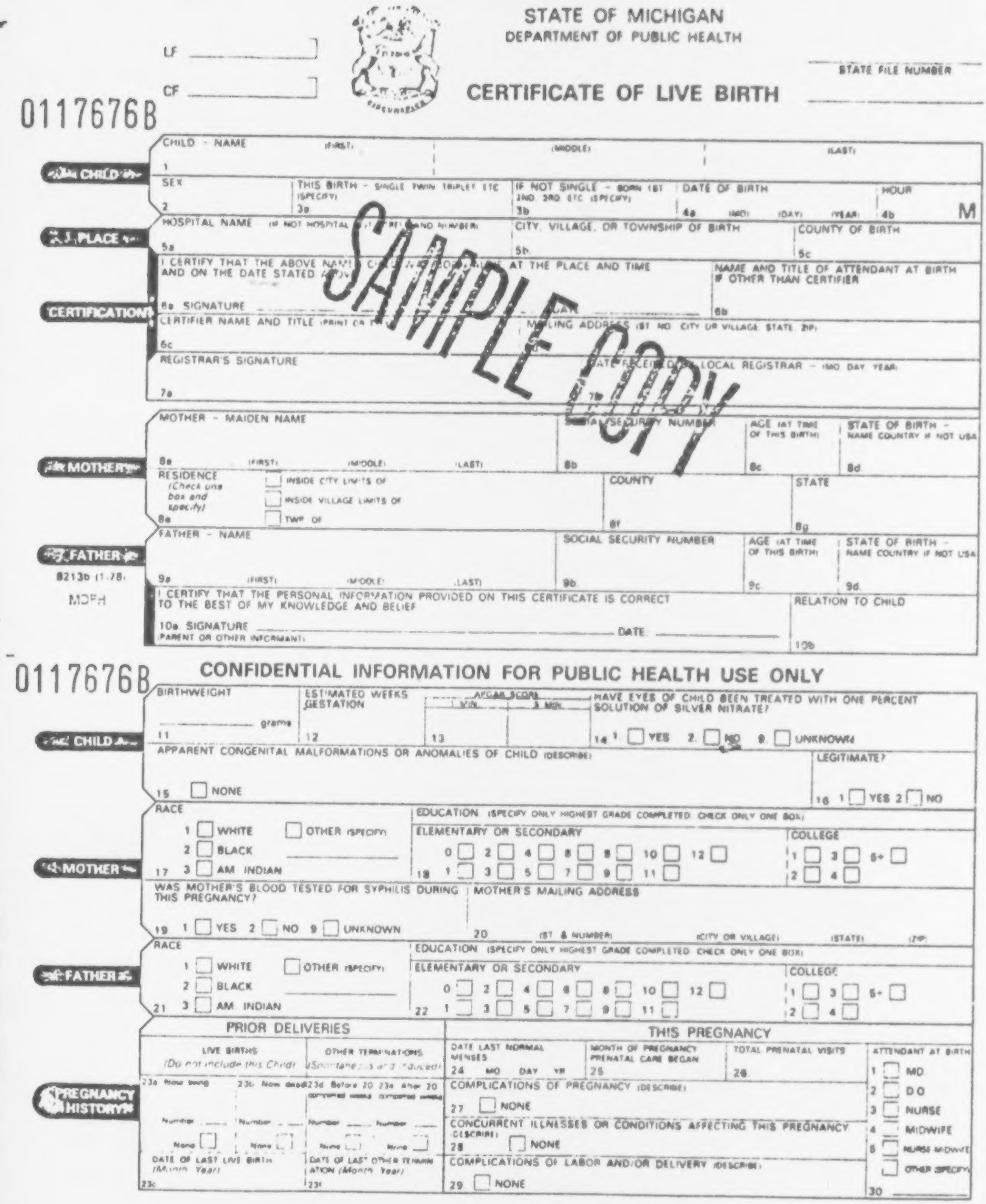
FIGURE 4.7 Life Expectancy at Birth By Sex By Region[1], Michigan Residents, 1978-1980


REGION XIII
1- 73.8
2- 70.6
3- 77.4
REGION XII
1- 74.1
2- 71.2
3- 77.2
REGION XI
1- 73.0
2- 69.0
3- 77.5
REGION IX
1- 73.4
2- 69.3
3- 78.1
Michigan
1- 73.4
2- 69.9
3- 76.9
REGION X
1- 74.3
2- 71.1
3- 77.5
LEGEND
1. Life Expectancy of the Resident Population
2. Life Expectancy of the Resident Male Population
3. Life Expectancy of the Resident Female Population
REGION VIII
1- 74.3
2- 70.9
3- 77.8
REGION VII
1- 73.9
2- 70.5
3- 77.5
REGION XIV
1- 74.8
2- 71.7
3- 78.0
REGION V
1- 72.9
2- 69.3
3- 76.6
1- 75.5
2- 72.2
3- 78.7
REGION VI
REGION I
1- 72.7
2- 69.1
3- 76.3
REGION IV
1- 73.6
2- 70.4
3- 76.9
REGION III
1- 74.4
2- 70.9
3- 77.9
1-74.3
2-71.3
3-77.2
REGION II

---

[1] State Planning and Development Regions - August, 1973

Fig. 4.8



STATE OF MICHIGAN
DEPARTMENT OF PUBLIC HEALTH

LF ______
CF ______

STATE FILE NUMBER ______

CERTIFICATE OF LIVE BIRTH

0117676B

SAMPLE COPY

CHILD
CHILD - NAME (FIRST) (MIDDLE) (LAST) 1
SEX 2
THIS BIRTH - SINGLE TWIN TRIPLET ETC (SPECIFY) 3a
IF NOT SINGLE - BORN 1ST 2ND, 3RD ETC (SPECIFY) 3b
DATE OF BIRTH 4a (MO) (DAY) (YEAR)
HOUR 4b M

PLACE
HOSPITAL NAME (IF NOT HOSPITAL, GIVE STREET AND NUMBER) 5a
CITY, VILLAGE, OR TOWNSHIP OF BIRTH 5b
COUNTY OF BIRTH 5c

CERTIFICATION
I CERTIFY THAT THE ABOVE NAMED CHILD WAS BORN ALIVE AT THE PLACE AND TIME AND ON THE DATE STATED ABOVE
6a SIGNATURE ______ DATE ______
NAME AND TITLE OF ATTENDANT AT BIRTH IF OTHER THAN CERTIFIER 6b
CERTIFIER NAME AND TITLE (PRINT OR TYPE) 6c
MAILING ADDRESS (ST NO CITY OR VILLAGE STATE ZIP)
REGISTRAR'S SIGNATURE 7a
DATE RECEIVED BY LOCAL REGISTRAR - (MO DAY YEAR) 7b

MOTHER
MOTHER - MAIDEN NAME 8a (FIRST) (MIDDLE) (LAST)
SOCIAL SECURITY NUMBER 8b
AGE (AT TIME OF THIS BIRTH) 8c
STATE OF BIRTH - NAME COUNTRY IF NOT USA 8d
RESIDENCE (Check one box and specify) 8e
☐ INSIDE CITY LIMITS OF
☐ INSIDE VILLAGE LIMITS OF
☐ TWP OF
COUNTY 8f
STATE 8g

FATHER
FATHER - NAME 9a (FIRST) (MIDDLE) (LAST)
SOCIAL SECURITY NUMBER 9b
AGE (AT TIME OF THIS BIRTH) 9c
STATE OF BIRTH - NAME COUNTRY IF NOT USA 9d

8213b (1-78)
MDPH

I CERTIFY THAT THE PERSONAL INFORMATION PROVIDED ON THIS CERTIFICATE IS CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF
10a SIGNATURE (PARENT OR OTHER INFORMANT) ______ DATE ______
RELATION TO CHILD 10b

0117676B

CONFIDENTIAL INFORMATION FOR PUBLIC HEALTH USE ONLY

CHILD
BIRTHWEIGHT 11 ______ grams
ESTIMATED WEEKS GESTATION 12
APGAR SCORE 13 1 MIN. 5 MIN.
HAVE EYES OF CHILD BEEN TREATED WITH ONE PERCENT SOLUTION OF SILVER NITRATE? 14 1. ☐ YES 2. ☐ NO 9. ☐ UNKNOWN
APPARENT CONGENITAL MALFORMATIONS OR ANOMALIES OF CHILD (DESCRIBE) 15 ☐ NONE
LEGITIMATE? 16 1 ☐ YES 2 ☐ NO

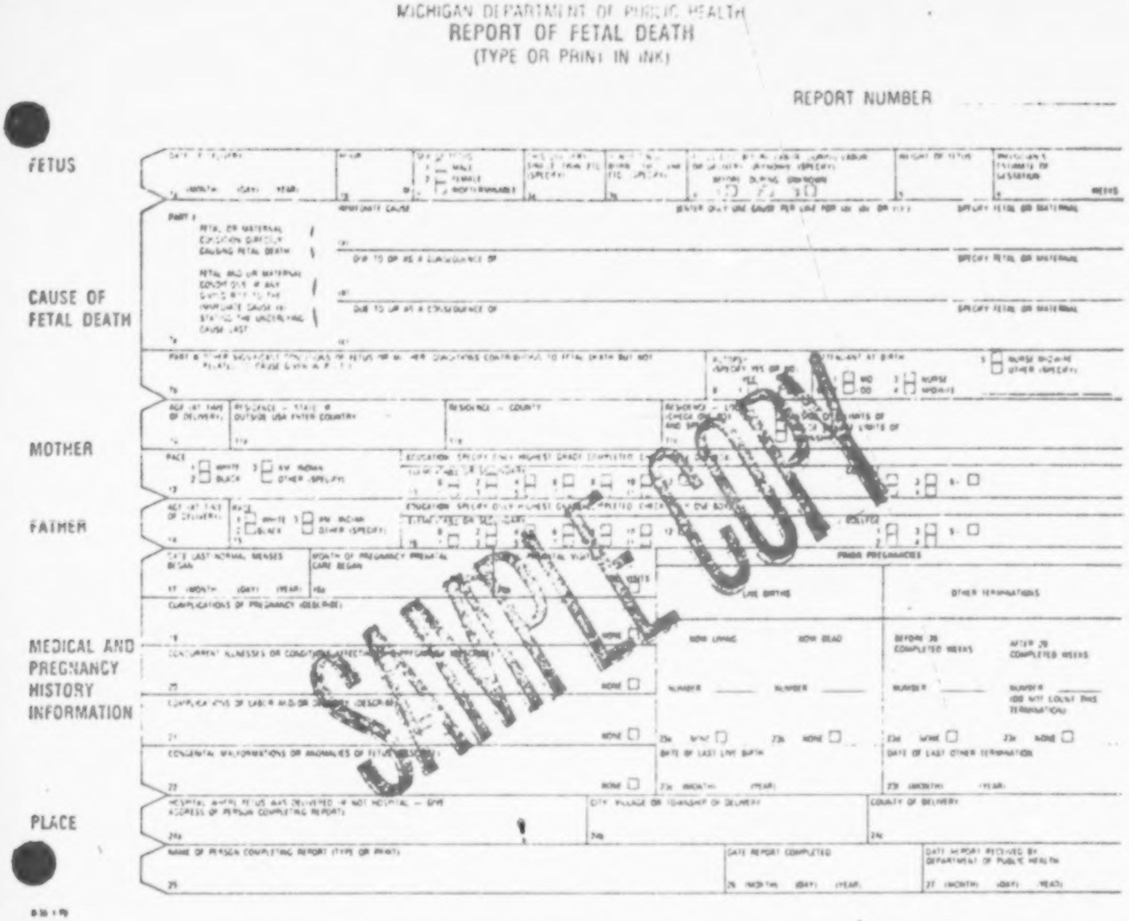
MOTHER
RACE 17
1 ☐ WHITE
2 ☐ BLACK
3 ☐ AM INDIAN
☐ OTHER (SPECIFY) ______
EDUCATION (SPECIFY ONLY HIGHEST GRADE COMPLETED. CHECK ONLY ONE BOX) 18
ELEMENTARY OR SECONDARY
0 ☐ 2 ☐ 4 ☐ 6 ☐ 8 ☐ 10 ☐ 12 ☐
1 ☐ 3 ☐ 5 ☐ 7 ☐ 9 ☐ 11 ☐
COLLEGE
1 ☐ 3 ☐ 5+ ☐
2 ☐ 4 ☐
WAS MOTHER'S BLOOD TESTED FOR SYPHILIS DURING THIS PREGNANCY? 19 1 ☐ YES 2 ☐ NO 9 ☐ UNKNOWN
MOTHER'S MAILING ADDRESS 20 (ST & NUMBER) (CITY OR VILLAGE) (STATE) (ZIP)

FATHER
RACE 21
1 ☐ WHITE
2 ☐ BLACK
3 ☐ AM INDIAN
☐ OTHER (SPECIFY) ______
EDUCATION (SPECIFY ONLY HIGHEST GRADE COMPLETED. CHECK ONLY ONE BOX) 22
ELEMENTARY OR SECONDARY
0 ☐ 2 ☐ 4 ☐ 6 ☐ 8 ☐ 10 ☐ 12 ☐
1 ☐ 3 ☐ 5 ☐ 7 ☐ 9 ☐ 11 ☐
COLLEGE
1 ☐ 3 ☐ 5+ ☐
2 ☐ 4 ☐

PREGNANCY HISTORY
PRIOR DELIVERIES
LIVE BIRTHS (Do not include this Child)
23a Now living Number ____ None ☐
23b Now dead Number ____ None ☐
DATE OF LAST LIVE BIRTH (Month Year) 23c
OTHER TERMINATIONS (Spontaneous and induced)
23d Before 20 completed weeks Number ____ None ☐
23e After 20 completed weeks Number ____ None ☐
DATE OF LAST OTHER TERMINATION (Month Year) 23f

THIS PREGNANCY
DATE LAST NORMAL MENSES 24 MO DAY YR
MONTH OF PREGNANCY PRENATAL CARE BEGAN 25
TOTAL PRENATAL VISITS 26
COMPLICATIONS OF PREGNANCY (DESCRIBE) 27 ☐ NONE
CONCURRENT ILLNESSES OR CONDITIONS AFFECTING THIS PREGNANCY (DESCRIBE) 28 ☐ NONE
COMPLICATIONS OF LABOR AND/OR DELIVERY (DESCRIBE) 29 ☐ NONE
ATTENDANT AT BIRTH 30
1 ☐ MD
2 ☐ DO
3 ☐ NURSE
4 ☐ MIDWIFE
5 ☐ NURSE MIDWIFE
☐ OTHER (SPECIFY) ______

FIGURE 4.9



MICHIGAN DEPARTMENT OF PUBLIC HEALTH
REPORT OF FETAL DEATH
(TYPE OR PRINT IN INK)

REPORT NUMBER

FETUS

CAUSE OF FETAL DEATH

MOTHER

FATHER

MEDICAL AND PREGNANCY HISTORY INFORMATION

PLACE

SAMPLE COPY

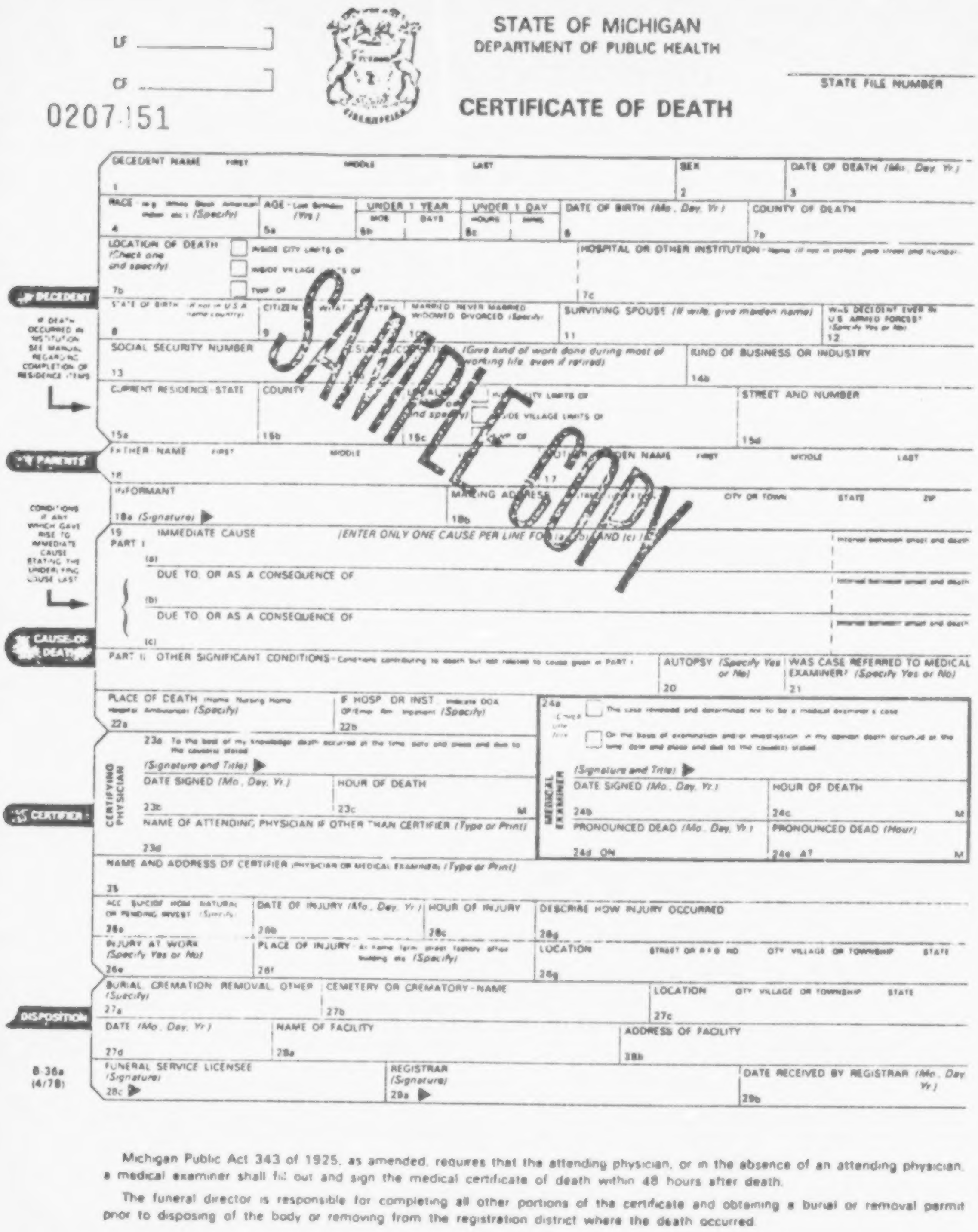
INSTRUCTIONS

Michigan Public Act 368 of 1978 requires the reporting of the death of a fetus which has completed 20 weeks of gestation or weighs at least 400 grams to the state registrar within 5 days after delivery. Responsibility for filing fetal death reports lies with the following: 1) the institution where the fetus is delivered; 2) the attending physician if delivered outside an institution; 3) the medical examiner, when investigation by the medical examiner is required.

As these reports are necessary in the development of important statistical health measures for the state, including fetal and perinatal mortality, and the analysis of various variables associated to fetal death outcomes, it is important that each report be as accurrate and complete as is possible.

DO NOT REPORT THE NAME OF THE BIOLOGICAL PARENTS, OR OTHER INFORMATION WHICH WOULD MAKE IT POSSIBLE TO IDENTIFY EITHER PARENT.

Fig. 4.10



LF
CF
0207 151

STATE OF MICHIGAN
DEPARTMENT OF PUBLIC HEALTH

STATE FILE NUMBER

CERTIFICATE OF DEATH

SAMPLE COPY

DECEDENT

DECEDENT NAME FIRST MIDDLE LAST 1
SEX 2
DATE OF DEATH (Mo., Day, Yr.) 3
RACE (e.g. White, Black, American Indian, etc.) (Specify) 4
AGE - Last Birthday (Yrs.) 5a
UNDER 1 YEAR MOS DAYS 5b
UNDER 1 DAY HOURS MINS 5c
DATE OF BIRTH (Mo., Day, Yr.) 6
COUNTY OF DEATH 7a
LOCATION OF DEATH (Check one and specify) 7b ☐ INSIDE CITY LIMITS OF ☐ INSIDE VILLAGE LIMITS OF ☐ TWP OF
HOSPITAL OR OTHER INSTITUTION - Name (If not in either, give street and number) 7c
STATE OF BIRTH (If not in U.S.A. name country) 8
CITIZEN OF WHAT COUNTRY 9
MARRIED, NEVER MARRIED, WIDOWED, DIVORCED (Specify) 10
SURVIVING SPOUSE (If wife, give maiden name) 11
WAS DECEDENT EVER IN U.S. ARMED FORCES? (Specify Yes or No) 12
SOCIAL SECURITY NUMBER 13
USUAL OCCUPATION (Give kind of work done during most of working life, even if retired) 14a
KIND OF BUSINESS OR INDUSTRY 14b

IF DEATH OCCURRED IN INSTITUTION SEE MANUAL REGARDING COMPLETION OF RESIDENCE ITEMS

CURRENT RESIDENCE - STATE 15a
COUNTY 15b
LOCALITY (Check one and specify) 15c ☐ INSIDE CITY LIMITS OF ☐ INSIDE VILLAGE LIMITS OF ☐ TWP OF
STREET AND NUMBER 15d

PARENTS

FATHER NAME FIRST MIDDLE LAST 16
MOTHER MAIDEN NAME FIRST MIDDLE LAST 17
INFORMANT 18a (Signature) ▶
MAILING ADDRESS STREET OR R.F.D. NO. CITY OR TOWN STATE ZIP 18b

CAUSE OF DEATH

CONDITIONS, IF ANY, WHICH GAVE RISE TO IMMEDIATE CAUSE STATING THE UNDERLYING CAUSE LAST

19 PART I IMMEDIATE CAUSE (ENTER ONLY ONE CAUSE PER LINE FOR (a), (b), AND (c).)
(a) Interval between onset and death
DUE TO, OR AS A CONSEQUENCE OF
(b) Interval between onset and death
DUE TO, OR AS A CONSEQUENCE OF
(c) Interval between onset and death
PART II OTHER SIGNIFICANT CONDITIONS - Conditions contributing to death but not related to cause given in PART I
AUTOPSY (Specify Yes or No) 20
WAS CASE REFERRED TO MEDICAL EXAMINER? (Specify Yes or No) 21
PLACE OF DEATH (Home, Nursing Home, Hospital, Ambulance) (Specify) 22a
IF HOSP. OR INST. Indicate DOA, OP/Emer. Rm., Inpatient (Specify) 22b

CERTIFIER

CERTIFYING PHYSICIAN
23a To the best of my knowledge, death occurred at the time, date and place and due to the cause(s) stated.
(Signature and Title) ▶
DATE SIGNED (Mo., Day, Yr.) 23b
HOUR OF DEATH 23c M
NAME OF ATTENDING PHYSICIAN IF OTHER THAN CERTIFIER (Type or Print) 23d

MEDICAL EXAMINER
24a (Check one box)
☐ This case reviewed and determined not to be a medical examiner's case.
☐ On the basis of examination and/or investigation, in my opinion death occurred at the time, date and place and due to the cause(s) stated.
(Signature and Title) ▶
DATE SIGNED (Mo., Day, Yr.) 24b
HOUR OF DEATH 24c M
PRONOUNCED DEAD (Mo., Day, Yr.) 24d ON
PRONOUNCED DEAD (Hour) 24e AT M

NAME AND ADDRESS OF CERTIFIER (PHYSICIAN OR MEDICAL EXAMINER) (Type or Print) 25
ACC., SUICIDE, HOM., NATURAL OR PENDING INVEST. (Specify) 26a
DATE OF INJURY (Mo., Day, Yr.) 26b
HOUR OF INJURY 26c
DESCRIBE HOW INJURY OCCURRED 26d
INJURY AT WORK (Specify Yes or No) 26e
PLACE OF INJURY - At home, farm, street, factory, office building, etc. (Specify) 26f
LOCATION STREET OR R.F.D. NO. CITY, VILLAGE OR TOWNSHIP STATE 26g

DISPOSITION

BURIAL, CREMATION, REMOVAL, OTHER (Specify) 27a
CEMETERY OR CREMATORY - NAME 27b
LOCATION CITY, VILLAGE OR TOWNSHIP STATE 27c
DATE (Mo., Day, Yr.) 27d
NAME OF FACILITY 28a
ADDRESS OF FACILITY 28b
FUNERAL SERVICE LICENSEE (Signature) 28c ▶
REGISTRAR (Signature) 29a ▶
DATE RECEIVED BY REGISTRAR (Mo., Day, Yr.) 29b

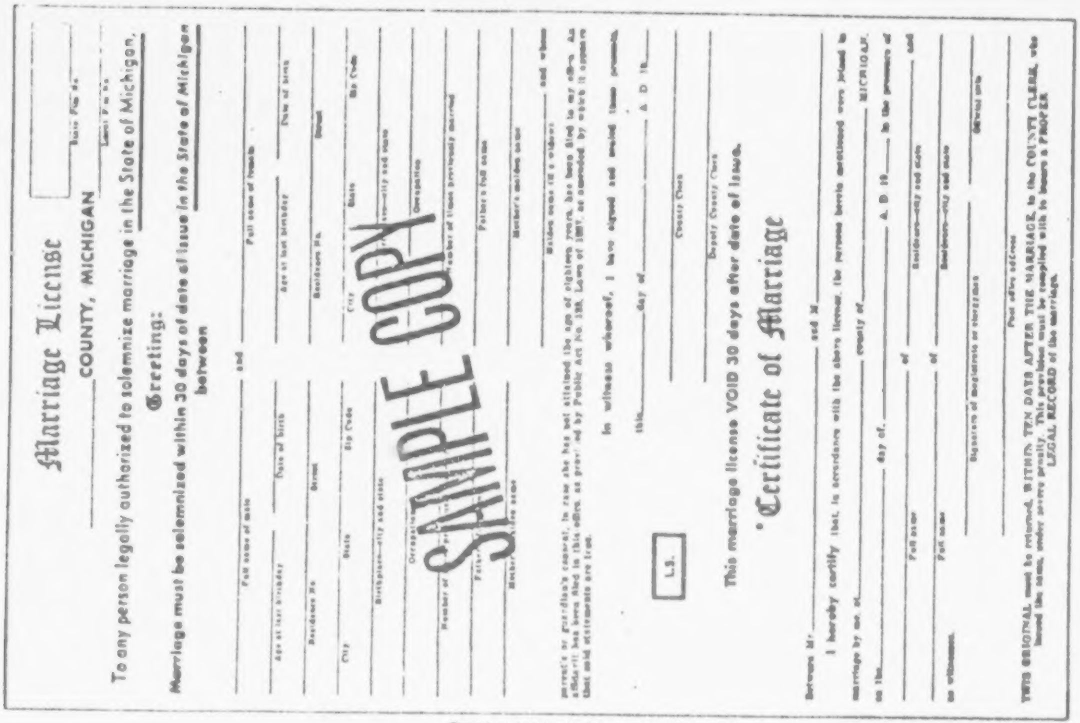
B-36a
(4/78)

Michigan Public Act 343 of 1925, as amended, requires that the attending physician, or in the absence of an attending physician, a medical examiner shall fill out and sign the medical certificate of death within 48 hours after death.

The funeral director is responsible for completing all other portions of the certificate and obtaining a burial or removal permit prior to disposing of the body or removing from the registration district where the death occurred.

MDPH

FIGURE 4.11



Marriage License

________________ COUNTY, MICHIGAN

State File No. ________
Local File No. ________

To any person legally authorized to solemnize marriage in the State of Michigan,

Greeting:

Marriage must be solemnized within 30 days of date of issue in the State of Michigan between

Full name of male	and	Full name of female
Age at last birthday / Date of birth		Age at last birthday / Date of birth
Residence No. / Street		Residence No. / Street
City / State / Zip Code		City / State / Zip Code
Birthplace—city and state		Birthplace—city and state
Occupation		Occupation
Number of times previously married		Number of times previously married
Father's full name		Father's full name
Mother's maiden name		Mother's maiden name
		Maiden name (if a widow)

________________ and whose parent's or guardian's consent, in case she has not attained the age of eighteen years, has been filed in my office. An affidavit has been filed in this office, as provided by Public Act No. 128, Laws of 1887, as amended, by which it appears that said statements are true.

In witness whereof, I have signed and sealed these presents,

this ________ day of ____________ A. D. 19___

L.S.

____
County Clerk

____
Deputy County Clerk

This marriage license VOID 30 days after date of issue.

*Certificate of Marriage

Between Mr. ________________ and M ________________

I hereby certify that, in accordance with the above license, the persons herein mentioned were joined in marriage by me, at ____________ county of ____________ MICHIGAN, on the ________ day of ____________ A. D. 19___ in the presence of

____________ of ____________ and
Full name / Residence—city and state

____________ of ____________
Full name / Residence—city and state

as witnesses.

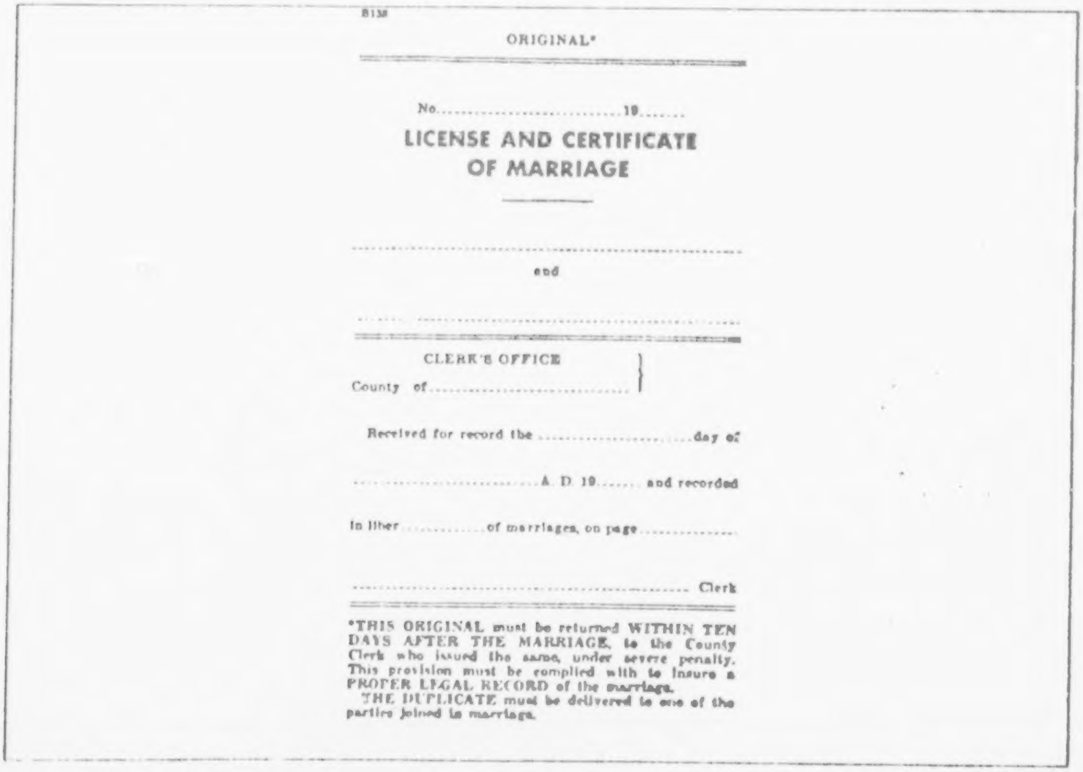
________________ ________
Signature of magistrate or clergyman / Official title

____
Post office address

THIS ORIGINAL must be returned, **WITHIN TEN DAYS AFTER THE MARRIAGE,** to the **COUNTY CLERK,** who issued the same, under severe penalty. This provision must be complied with to insure a **PROPER LEGAL RECORD** of the marriage.

This space reserved for binding.

*Except for signatures, spaces left blank must be completed by typewriter or printed legibly. Act 96, P.A. 1968



B138

ORIGINAL*

No. .... 19.......

LICENSE AND CERTIFICATE OF MARRIAGE

....

and

....

CLERK'S OFFICE
County of ....

Received for record the .... day of

.... A. D. 19....... and recorded

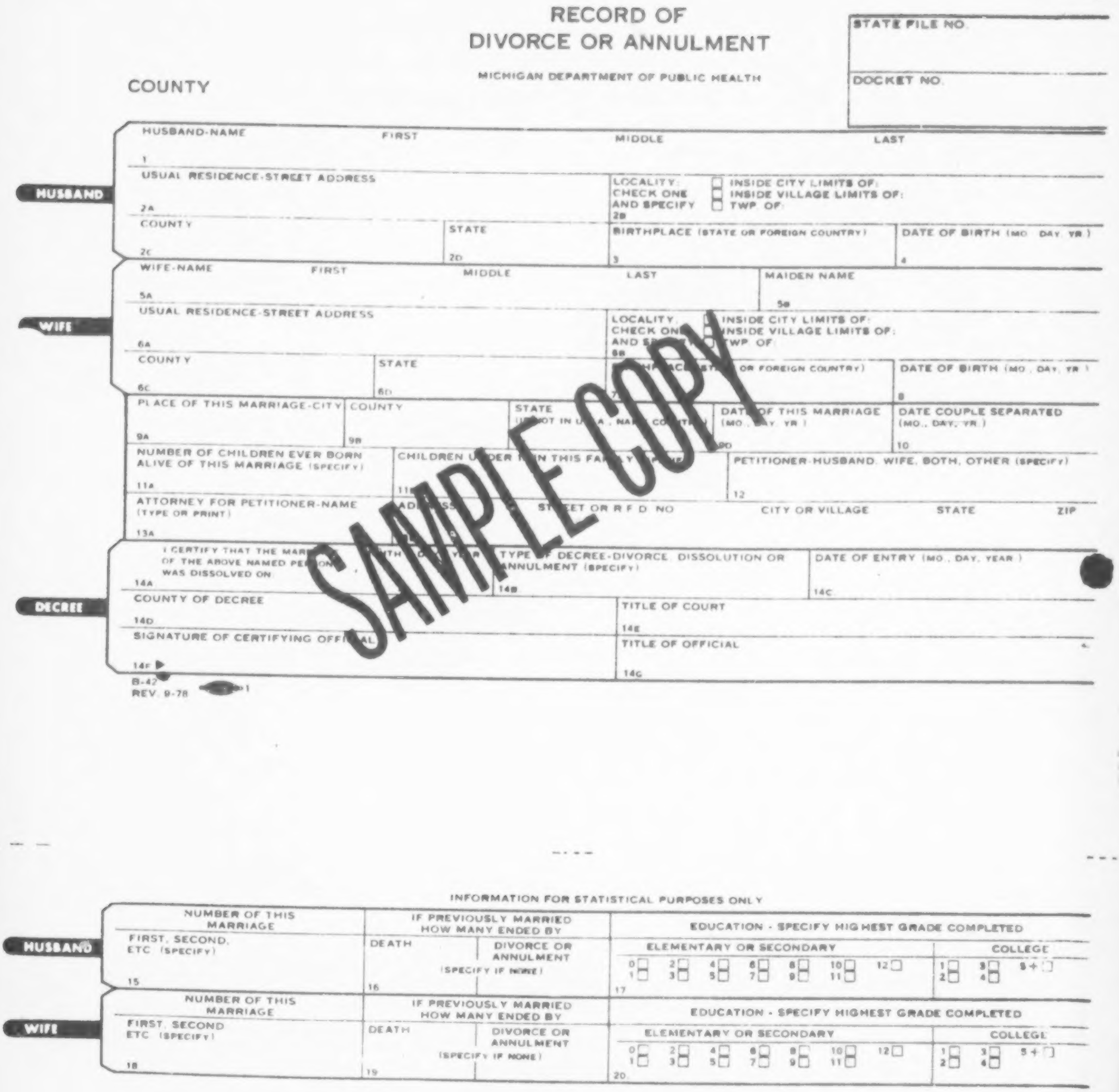
in liber .... of marriages, on page ....

.... Clerk

***THIS ORIGINAL** must be returned **WITHIN TEN DAYS AFTER THE MARRIAGE,** to the County Clerk who issued the same, under severe penalty. This provision must be complied with to insure a **PROPER LEGAL RECORD** of the marriage.

THE DUPLICATE must be delivered to one of the parties joined in marriage.

FIGURE 4.12



RECORD OF
DIVORCE OR ANNULMENT

MICHIGAN DEPARTMENT OF PUBLIC HEALTH

COUNTY

STATE FILE NO.

DOCKET NO.

SAMPLE COPY

HUSBAND

HUSBAND-NAME FIRST MIDDLE LAST 1

USUAL RESIDENCE-STREET ADDRESS 2A

LOCALITY: CHECK ONE AND SPECIFY 2B
☐ INSIDE CITY LIMITS OF:
☐ INSIDE VILLAGE LIMITS OF:
☐ TWP. OF:

COUNTY 2C

STATE 2D

BIRTHPLACE (STATE OR FOREIGN COUNTRY) 3

DATE OF BIRTH (MO. DAY, YR.) 4

WIFE

WIFE-NAME FIRST MIDDLE LAST 5A

MAIDEN NAME 5B

USUAL RESIDENCE-STREET ADDRESS 6A

LOCALITY: CHECK ONE AND SP 6B
☐ INSIDE CITY LIMITS OF:
☐ INSIDE VILLAGE LIMITS OF:
☐ TWP. OF:

COUNTY 6C

STATE 6D

OR FOREIGN COUNTRY) 7

DATE OF BIRTH (MO., DAY, YR.) 8

PLACE OF THIS MARRIAGE-CITY 9A

COUNTY 9B

STATE (IF NOT IN U A., NA COUNTRY)

DATE OF THIS MARRIAGE (MO., DAY, YR.) 9D

DATE COUPLE SEPARATED (MO., DAY, YR.) 10

NUMBER OF CHILDREN EVER BORN ALIVE OF THIS MARRIAGE (SPECIFY) 11A

CHILDREN U DER IN THIS FA Y 11

PETITIONER-HUSBAND, WIFE, BOTH, OTHER (SPECIFY) 12

ATTORNEY FOR PETITIONER-NAME (TYPE OR PRINT) 13A

AD SS ST ET OR R F D NO CITY OR VILLAGE STATE ZIP

DECREE

I CERTIFY THAT THE MAR OF THE ABOVE NAMED PE WAS DISSOLVED ON 14A

TYPE F DECREE-DIVORCE, DISSOLUTION OR ANNULMENT (SPECIFY) 14B

DATE OF ENTRY (MO., DAY, YEAR.) 14C

COUNTY OF DECREE 14D

TITLE OF COURT 14E

SIGNATURE OF CERTIFYING OFFI AL 14F ▶

TITLE OF OFFICIAL 14G

B-42
REV. 9-78

INFORMATION FOR STATISTICAL PURPOSES ONLY

HUSBAND

NUMBER OF THIS MARRIAGE
FIRST, SECOND, ETC (SPECIFY) 15

IF PREVIOUSLY MARRIED HOW MANY ENDED BY
DEATH 16
DIVORCE OR ANNULMENT
(SPECIFY IF NONE)

EDUCATION - SPECIFY HIGHEST GRADE COMPLETED 17
ELEMENTARY OR SECONDARY
0☐ 1☐ 2☐ 3☐ 4☐ 5☐ 6☐ 7☐ 8☐ 9☐ 10☐ 11☐ 12☐
COLLEGE
1☐ 2☐ 3☐ 4☐ 5+☐

WIFE

NUMBER OF THIS MARRIAGE
FIRST, SECOND ETC (SPECIFY) 18

IF PREVIOUSLY MARRIED HOW MANY ENDED BY
DEATH 19
DIVORCE OR ANNULMENT
(SPECIFY IF NONE)

EDUCATION - SPECIFY HIGHEST GRADE COMPLETED 20
ELEMENTARY OR SECONDARY
0☐ 1☐ 2☐ 3☐ 4☐ 5☐ 6☐ 7☐ 8☐ 9☐ 10☐ 11☐ 12☐
COLLEGE
1☐ 2☐ 3☐ 4☐ 5+☐